# DEVELOPMENT SERVICES DEPARTMENT

# BUTTE COUNTY

Butte County

CALIFORNIA

**INITIAL STUDY AND**
**PROPOSED MITIGATED NEGATIVE DECLARATION**

***Conditional Use Permit, Mining Permit, and Reclamation Plan***
***MIN16-0002 and RP16-0001***

**Sacramento River Salmon Gravel Restoration Project**

**May 2019**

# Proposed Mitigated Negative Declaration
# Sacramento River Salmon Gravel Restoration Project

The Butte County Department of Development Services, acting as the California Environmental Quality Act (CEQA) lead agency, has reviewed the proposed project described below to determine whether substantial evidence supports a finding that project implementation could have a significant effect on the environment. "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land use, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

**Name of Project:** Sacramento River Salmon Gravel Restoration Project.

**Project Location:** The Sacramento River Salmon Gravel Restoration Project is located entirely within Butte County, California and is situated 5 miles southwest of the city of Chico. It is located on the south side of River Road, 4,700 feet northwest of the intersection of River Road and Chico River Road.

**Project Description:** M&T Chico Ranch is proposing a new mining operation (proposed project) that would remove an existing stockpile of alluvial aggregates from the project site. The stockpile was generated during wet and dry dredging operations conducted in 2001 and 2007 on the Sacramento River. Aggregate material will continue to be placed onsite as a result of future planned dredging operations described in in the M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project Environmental Assessment/Initial Study, Proposed Finding of No Significant Impact, and Proposed Mitigated Negative Declaration (SCH#201209050). The stockpile currently consists of approximately 300,000 tons of alluvial aggregates located on approximately 8.3 acres of the 12.4-acre project site. Two future dredging operations on the Sacramento River have been analyzed under the California Environmental Quality Act (CEQA) (SCH#2012092050), and each has obtained state and local approvals to deposit up to 150,000 tons of additional alluvial aggregate onsite. Combined, these two future dredging operations would add up to 300,000 tons of alluvial aggregate to the 300,000 tons already stockpiled onsite, resulting in a total of up to 600,000 tons of aggregate to be removed over the life of the proposed project. Annual mining production would range from 20,000 to 50,000 tons, with a maximum of 100,000 tons per year. It is assumed that mining and processing activities would begin in 2019 and would continue over a period of approximately 20 years. Following the completion of mining operations, the disturbed areas within the project site would be revegetated with native grassland species and reclaimed to open space uses. It is assumed that the project site would be monitored for 2 years after active mining is complete to ensure that the revegetation efforts are successful.

**Findings:** The attached initial study identifies one or more potentially significant effects on the environment in the resource areas listed in the table below. After consideration of the analysis contained in the initial study, the Butte County Department of Development Services finds that the proposed project as described above would not have a significant effect on the environment following implementation of mitigation measures described therein and listed below.

| Sacramento River Salmon Gravel Restoration Project Mitigation Measures |
|---|
| **Biological Resources** |
| **Mitigation Measure BIO-1**: Avoid Impacts on VELB |
| **Mitigation Measure BIO-2**: Prepare and Implement an Environmental Awareness Training Program for Project Personnel |
| **Mitigation Measure BIO-3**: Prepare and Implement a Dust Control Plan |
| **Mitigation Measure BIO-4**: Fill Sediment Ponds at the End of Each Processing Cycle |
| **Mitigation Measure BIO-5**: Avoid Disturbance of Tree-, Shrub-, and Ground-Nesting Special-Status and Non-Special-Status Migratory Birds and Raptors and Conduct Preconstruction Nesting Bird Surveys |
| **Cultural Resources** |
| **Mitigation Measure CUL-1**: Implement Measures to Protect Previously Unidentified Cultural Resources |
| **Mitigation Measure CUL-2**: Implement Measures if Project Activities Inadvertently Discover or Disturb Human Remains |
| **Hazards and Hazardous Materials** |
| **Mitigation Measure HAZ-1**: Prepare and Implement a Spill Prevention, Control, and Countermeasure Plan |
| **Public Services** |
| **Mitigation Measure TRANS-1**: Prepare and Implement a Traffic Control Plan |
| **Transportation/Traffic** |
| **Mitigation Measure TRANS-1**: Prepare and Implement a Traffic Control Plan |

**Public Review Period:** The proposed project's Initial Study and proposed Mitigated Negative Declaration (IS/MND) is available for review from May 20 to June 18, 2019. No later than **June 18, 2019**, any person may:

1) Review the IS/MND; and
2) Submit written comments regarding the information, analysis, and mitigation measures in the IS/MND by mail or email.

The IS/MND may be viewed at the following locations:

- Butte County Department of Development Services
  7 County Center Drive, Oroville, CA 95965
- http://www.buttecounty.net/dds/Planning/CEQA

**Lead Agency Contact:** Questions, comments, or requests for digital or physical copies may be directed to **Mr. Rowland Hickel** by email at rhickel@buttecounty.net; or in writing care of the Butte County Department of Development Services, 7 County Center Drive, Oroville, CA 95965; or by telephone at **(530) 552-3684**.

Name: Rowland Hickel

Title: Senior Planner

Signed: Rowland Hickel

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Adopted on: ____________

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# Acronyms and Abbreviations

| | |
|---|---|
| 2012 Plan | Northern Sacramento Valley Planning Area 2012 Triennial Air Quality Attainment Plan |
| CAAQS | California Ambient Air Quality Standards |
| CAP | Climate Action Plan |
| CAPCOA | California Air Pollution Control Officers Association |
| CCAA | California Clean Air Act |
| CEC | California Energy Commission |
| CHRIS | California Historical Information System |
| CO | carbon monoxide |
| CO2 | carbon dioxide |
| $CO_2e$ | carbon dioxide equivalent |
| CPUC | California Public Utilities Commission |
| CREED | Citizens for Responsible Equitable Environmental Development |
| DPM | diesel particulate matter |
| GWP | global warming potential |
| IPCC | Intergovernmental Panel on Climate Change |
| MLD | Most Likely Descendant |
| MPOs | Metropolitan Planning Organizations |
| NAAQS | national ambient air quality standards |
| NGOs | nongovernmental organizations |
| NO | nitric oxide |
| $NO_2$ | nitrogen dioxide |
| $O_3$ | ozone |
| Pb | lead |
| PCBs | Polychlorinated biphenyls |
| PM | particulate matter |
| ppb | parts per billion |
| ppm | parts per million |
| SB | Senate Bill |
| SCS | sustainable communities strategy |
| SO2 | sulfur dioxide |
| SVAB | Sacramento Valley Air Basin |
| TACs | toxic air contaminants |
| TCMs | traffic control measures |

# COUNTY OF BUTTE
# DEPARTMENT OF DEVELOPMENT SERVICES
# INITIAL STUDY AND PROPOSEDMITIGATED NEGATIVE DECLARATION FOR

## Conditional Use Permit, Mining Permit, and Reclamation Plan

## MIN16-0002 and RP16-0001
## Sacramento River Salmon Gravel Restoration Project

## 1.0 PROJECT INFORMATION

**A.** **Applicant/Owner:** M&T Chico Ranch

**B.** **Staff Contact:** Rowland Hickel, rhickel@buttecounty.net, (530) 552-3684.

**C.** **Project Name:** Sacramento River Salmon Gravel Restoration Project

**D.** **Project Location:** The Sacramento River Gravel Restoration Project ("proposed project" or "project") site is located entirely within Butte County, California and is situated 5 miles southwest of the city of Chico. It is located on the south side of River Road, 4,700 feet northwest of the intersection of River Road and Chico River Road. See Figure 1, Project Location Map.

**E.** **Type of Application:** Conditional Use Permit, Mining Permit, Reclamation Plan.

**F.** **Assessor Parcel Number:** APN 039-530-018.

**G.** **Project Site Size:** 12.4 acres.

**H.** **Current Zoning:** AG-160 (Agriculture, 160-acre minimum parcel size).

**I.** **General Plan Designation:** AG (Agriculture).

**J.** **Environmental Setting:** The project site lies within the Central Valley, along the eastern banks of the Sacramento River (see Figure 1). Topography in this area consists of flat expansive areas with several large tributaries of the Sacramento River gathering and joining up with the river. The land surrounding the project site is predominately covered by intensive commercial agriculture, wetlands, riparian habitat, and valley oak woodland. Land use in the general area surrounding the project includes annual crop production, waterfowl habitat, public open space, scattered residential dwellings, fruit and nut orchards, and the City of Chico's Water Pollution Control Plant (wastewater treatment plant). Additional information related to the environmental setting is presented by resource in the checklist.

**K.** **Surrounding Land Uses:** The land surrounding the project site is predominately covered by intensive commercial agriculture, wetlands, riparian habitat, and valley oak woodland. Land use in the general area surrounding project site includes annual crop production, public open space, waterfowl habitat, scattered residential dwellings, fruit and nut orchards, and a wastewater treatment plant (Table 1-1). The project site lies 5 miles to the southwest of the city of Chico, which has a population base of approximately 90,000. Big Chico Creek runs along the western side of the project site and empties into the Sacramento River near the southwestern limits of the project site. River Road, which runs east to west along this stretch of the roadway, identifies the northern limit of the project site. Land use to the northeast and east of the project site is primarily walnut orchards.

**Table 1-1. Surrounding Land Uses**

| Direction | General Plan Designation | Zoning | Existing Land Use(s) |
|---|---|---|---|
| North | AG (Agriculture) | AG-160 | Orchard, open space |
| South | AG (Agriculture) | AG-160 | Orchard |
| East | AG (Agriculture) | AG-160 | Orchard |
| West | n/a | n/a | Open space |

## L. Project Description:

### 1) Introduction

M&T Chico Ranch is proposing a new mining operation (proposed project) that would remove an existing stockpile of alluvial aggregates from the project site. The stockpile was generated during wet and dry dredging operations conducted in 2001 and 2007 on the Sacramento River. Aggregate material will continue to be placed onsite as a result of future planned dredging operations described in in the M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project Environmental Assessment/Initial Study, Proposed Finding of No Significant Impact, and Proposed Mitigated Negative Declaration (SCH#201209050). The stockpile currently consists of approximately 300,000 tons of alluvial aggregates located on approximately 8.3 acres of the 12.4-acre project site (see Figure 2, Project Site). Two future dredging operations on the Sacramento River have been analyzed under the California Environmental Quality Act (CEQA) (SCH#2012092050), and each has obtained state and local approvals to deposit up to 150,000 tons of additional alluvial aggregate onsite. Combined, these two future dredging operations would add up to 300,000 tons of alluvial aggregate to the 300,000 tons already stockpiled onsite, resulting in a total of up to 600,000 tons of aggregate to be removed over the life of the proposed project. Annual mining production would range from 20,000 to 50,000 tons, with a maximum of 100,000 tons per year. It is assumed for the purposes of the analysis in this initial study that mining and processing activities would begin in 2019 and would continue over a period of approximately 20 years; however, this timeline may be extended depending on the intensity of the operations, which may be dictated by market demand, variations in geologic conditions encountered in the field, future dredging operations, and technological advancements in the mining process. Following the completion of mining operations, the disturbed areas within the project site would be revegetated with native grassland species and reclaimed to open space uses. It is assumed that the project site would be monitored for 2 years after active mining is complete to ensure that the revegetation efforts are successful. The mining operations and eventual reclamation of the site would take place pursuant to the Reclamation Plan for the Sacramento River Salmon Gravel Restoration Project (Reclamation Plan) prepared by EnviroMINE, Inc., which is included in Appendix A of this document.

### 2) Project Site

The project site is divided into the two areas listed in Table 1-2 and shown on Figure 3, Project Site Components. These areas are described in more detail below. The project has been designed to provide a minimum buffer of 20 feet between mining activities and a number of elderberry shrubs identified to the west and northeast of the project site. Figure 3 shows the location of these shrubs as well as the 20-foot buffer.

**Table 1-2. Project Site Components**

| Component | Acreage |
|---|---|
| Excavation/Operation Area | 8.3 |
| Road and Pipeline Area | 4.1 |
| **Total Project Site Area** | **12.4** |

#### a. Excavation/Operation Area

The Excavation/Operation Area is where past dredging operations placed alluvial aggregates on the site, and where future approved dredging operations would place dredge spoils; extraction activities would be conducted in this area. The area encompasses approximately 8.3 acres. Approximately 600,000 tons of aggregate would be extracted from this area over the life of project. Only a portion of the Excavation/Operation Area will be actively mined at any given time, and the inactive portions of the Excavation/Operation Area will be used for operations. Operational activities include aggregate processing, material stockpiling, stormwater management, dewatering, and general site support.

#### b. Road and Pipeline Area

The project's access road connects to River Road at the north end of the project site, and runs southward along the eastern edge of the site atop a non-federal levee. This road will be used for employee and haul truck access.

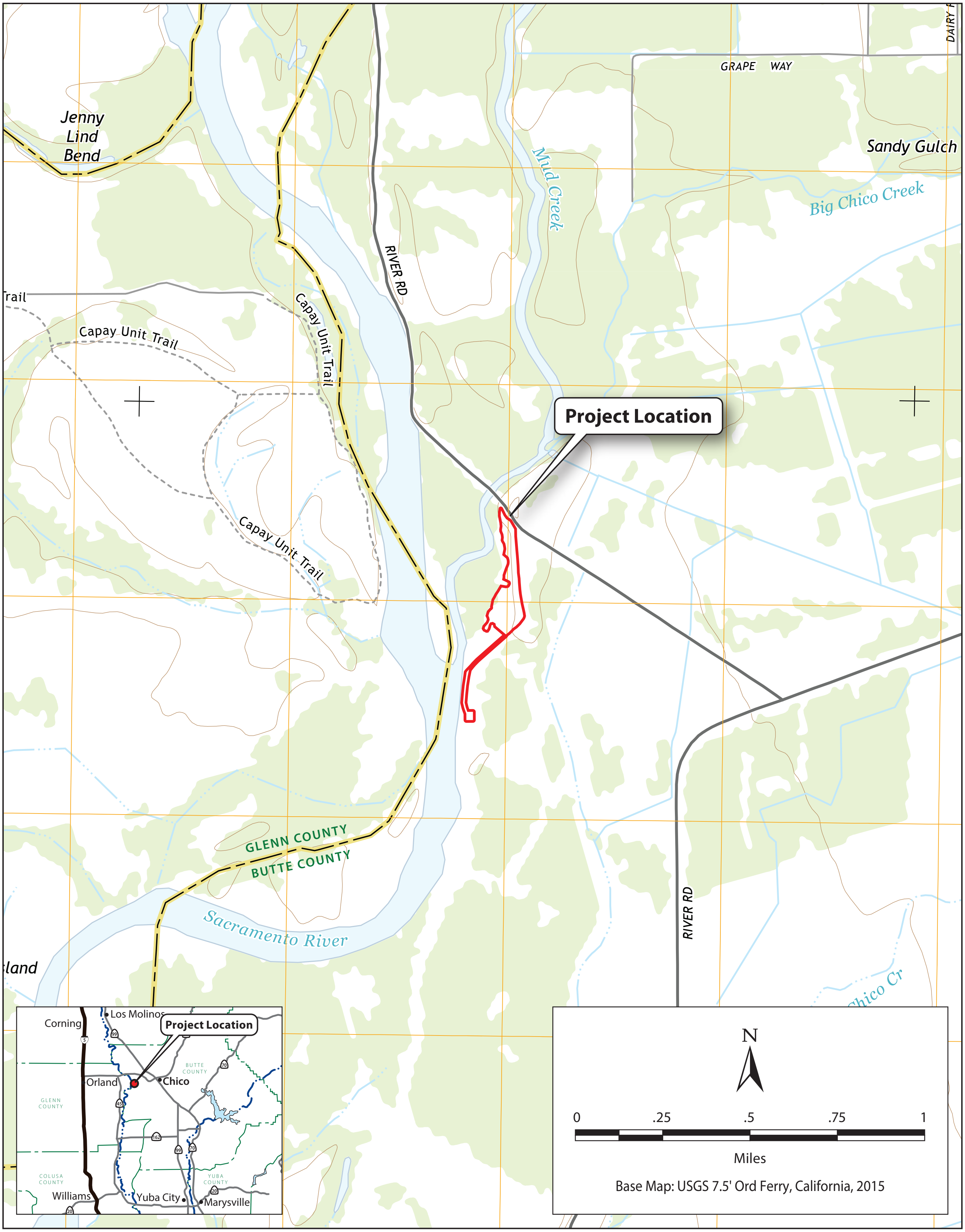


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**Figure 1**
**Project Location**

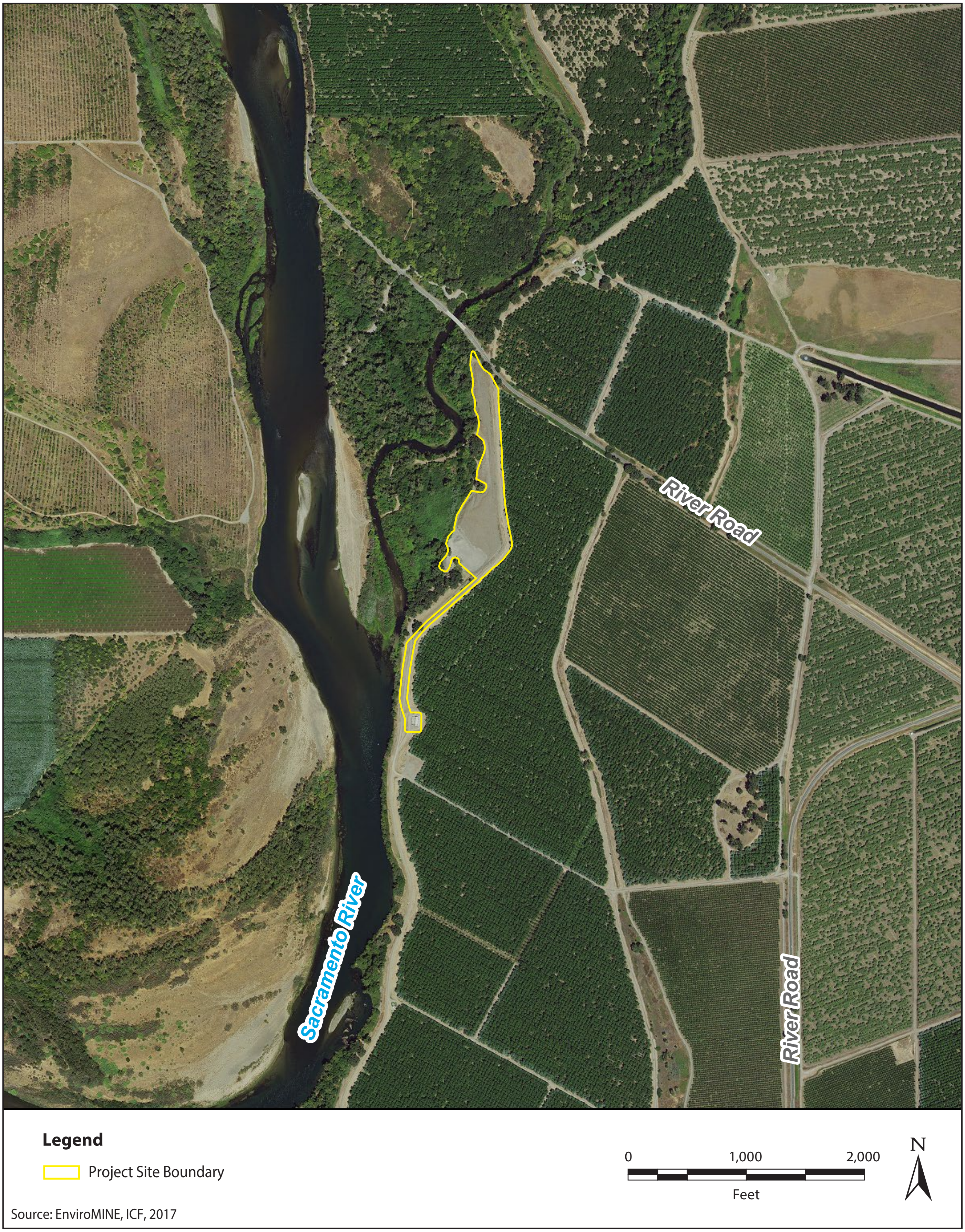


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**Figure 2**
**Project Site**


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**Figure 3**
**Project Site Components**

In order to supply water needed for material washing and dust control at the project site, a temporary, above-ground 6-inch pipeline will be placed connecting the project site to the pumping plant located approximately 1,500 feet south of the Excavation/Operation Area.

The area encompassing the road and pipeline occupies approximately 4.1 acres.

**3) Mining Operations**

The mining (or "extraction") process generally includes excavating stockpiled materials, onsite material transport, and processing. For the purposes of this analysis, the most intensive mining scenario for any given year is used. This scenario assumes extraction of 100,000 tons of aggregate per year, with operations occurring 250 days per year from 7 a.m. to 4 p.m. No topsoil and very limited vegetation exists within the area where mining activities would take place. Each process is described below.

**a. Site Preparation**

Before mining activities commence, the following site development activities would be implemented: moving equipment on to the site, installing stormwater protection components, placement of the temporary above-ground pipeline connecting the pumping plant to the southern end of the project site, and any other items necessary to conduct mining.

**b. Aggregate Extraction and Onsite Transport**

Alluvial aggregates would be moved from the stockpile with either a hydraulic excavator or a front-end loader and loaded into off-road haul trucks to be taken to a portable crushing plant and screening plant located within the Excavation/Operation Area; or the materials may be directly fed into the portable crushing and screening plants. Mining activities are anticipated to begin at the southern end of the Excavation/Operation Area and would proceed northward over the life of the project. If additional aggregates are deposited within the Excavation/Operation Area as part of future approved dredging operations, mining activities would restart at the southern end of the Excavation/Operation Area after the existing materials are mined and continue until all aggregates stockpiled from dredge operations are removed from the project site. As the extraction activities advance in a northerly direction, the portable processing plant may be relocated closer to the active extraction area to minimize haul distances from off-road haul units.

Water would be required for dust control within the project site. Water to suppress dust around the processing area and haul road would be supplied by the permanent pumping station located in the Sacramento River at the south end of the project site. The location of this pump is shown on Figure 3. Water would be pumped to the Excavation/Operation Area through the temporary above-ground pipeline and into a water truck for distribution around the site as needed. It is assumed that the water truck would make two passes per day during the dry season. Quarry operations dust suppression would require approximately 3 acre-feet per year (AFY).

**c. Aggregate Processing**

The primary and secondary aggregate processing plants would consist of equipment and facilities that crush, screen, wash, sort, and temporarily store processed aggregate materials prior to offsite distribution. All equipment would be portable so that it can be moved out of the floodplain during times when the project site may be inundated by the Sacramento River. These processes would require use of the following equipment and facilities:

- Cone or gyratory crushing units.
- Series of vibrating screens and rock washing units.
- Conveyors linking processing facilities with stockpiles.
- Finished material stockpiles.
- Sedimentation basins.

Once extracted and stockpiled, the aggregates would be delivered from the stockpile to the processing plant, where they would be screened, crushed, and either stockpiled or washed and then stockpiled. Stockpiled finished products would be stored at the site and await pickup from customer trucks. An excavator or front-end-loader would be used to load stockpiled material into customer trucks. Table 1-3 shows the plant and mobile equipment and use assumptions under the most intensive mining scenario (100,000 tons of aggregate mined per year).

**Table 1-3. Onsite Equipment Usage for Aggregate Mining at 100,000 Tons/Year**

| # | Make | Type/Model | Purpose | Usage | Horse-power |
|---|---|---|---|---|---|
| 1 | Powerscreen | Cone Crushing Plant | Crushing aggregates | 75% | 440 |
| 1 | Powerscreen | Double Deck Screen Plant | Aggregate screening | 75% | 120 |
| 1 | CAT | Loader – 966 M | Loading haul trucks | 50% | 267 |
| 1 | CAT | 725 Off Road Haul Truck | Haul material to plant | 50% | 314 |
| 1 | CAT | Excavator – 330 F | Feed processing plant, load haul truck | 75% | 239 |
| 1 | Peterbilt | Water Truck – 379 | General dust suppression | 25% | 430 |
| 1 | Ford | Pick-Up – F-150 | Foreman transportation | 5 miles/day | 280 |
| 1 | Ford | Truck – F-750 | Equipment repair and service | 2 miles/day | 200 |

Water would be required for the washing and processing of aggregates. Water would be supplied by the same temporary pipeline extending from the pumping station mentioned above, and shown on Figure 3, as the source of the water for dust suppression. Water utilized for aggregate processing would be cycled through the secondary processing plant where clays and silts become suspended in the water.

The sediment-laden water would be pumped from the processing plant to a series of three temporary sediment ponds where the sediment would be allowed to settle out. Each pond would be approximately 20 feet wide by 40 feet long and would be a maximum of 8' deep. These ponds would be situated side by side, adjoining on the long side. Once the sediments have settled out in the ponds, clean water from the third pond will be cycled back into the aggregate processing system. The ponds would be cleaned out periodically with the fines removed from the site to a landfill. These ponds would be moved around the project site in order to remain close to processing activities. Old ponds would be filled in as new ponds are constructed.

The total quantity of water that would be consumed during the processing of aggregates within the project site would be approximately 3 AFY. This number assumes that the majority of the water used for material washing would be recirculated back through the plant and roughly 10% of the water that is circulated through the plant is consumed by the process. Water usage would depend on the amount of production and the percentage of material that requires washing, Mining and material production volumes would vary year-to-year as market demand fluctuates.

**d. Best Management Practices During Mining Operations**

A number of best management practices (BMPs) would be incorporated into the mining operations, as described below.

Air Quality

All crushing, conveying and processing units would operate according to Permits to Operate issued by the Butte County Air Quality Management District (BCAQMD). The operation would comply with all BCAQMD rules and regulations, including requirements for the control of fugitive dust. These requirements include the use of best available control technology (BACT), which includes wetting down stockpiles and using water sprays to reduce or eliminate dust emissions.

Stockpile Management and Stormwater and Erosion Control

All material stockpiles would be temporary because these materials would be exported from the site after excavation and processing. Temporary material stockpiles would be approximately 25 feet in height with slopes at the angle of repose. The stockpiles would be designed with drainage control to ensure that all stormwater runoff is treated using BMPs. All stockpiles would be located within the footprint of the Excavation/Operation Area. Drainage would be directed inward to eliminate the potential for sediment to leave the project site. Stormwater controls would be monitored continuously to ensure that they are functioning properly.

Drainage within the disturbance footprint would be directed to the south and west and would either percolate into the water table or be allowed to evaporate. Site grading would direct runoff toward a number of low-lying areas located within the project site, away from the Sacramento River. Post-mining reclamation of the project site would result in a large, fairly level area that would not cause or contribute to offsite flooding. Drainage facilities would be designed to have a capacity to handle a 20-year storm event.

During mining and post-mining reclamation activities, stormwater on the project site would be managed in accordance with the approved Stormwater Pollution Prevention Plan (SWPPP). During extractive operations, stormwater and erosion control measures would include a range of BMPs, which may involve the following:

- Silt fencing or straw wattles installed along the project site boundary.
- Grading of the project site to direct runoff into the interior of the project site.
- Straw mulch or other materials applied to cut slopes.
- Revegetation.
- Minimizing disturbance.

Following the completion of surface mining operations, long-term and permanent erosion control measures would include:

- Final grading to promote positive drainage.
- Planting and hydroseeding at the appropriate time of the year to ensure revegetation of disturbed areas.
- Maintaining vegetation on areas disturbed by mining activities.

Disturbed areas would be monitored for evidence of erosion at periods specified in the SWPPP during both operational and post-operational periods. The “post-operational period” generally refers to the period after mining operations are complete and during which monitoring activities are taking place until performance standards set by the Reclamation Plan are met. Soil surfaces would be evaluated for action according to the Qualitative Descriptors of Soil Surface Status described in Section 3.9 of the Reclamation Plan (Appendix A).

Mining Waste

No permanent stockpiles of mining waste (i.e., overburden and unused rock material) would remain onsite after project completion. Temporary overburden stockpiles would be subject to drainage and erosion control BMPs, and runoff from stockpiles would collect at stormwater basins without discharging outside of the project site. Domestic refuse would be collected in approved trash bins and removed from the project site by the mine operator. No toxic or hazardous substances would be in use at the project site.

Hazards and Public Safety

Public health and safety would be protected in accordance with Butte County standards. During the lifetime of the project, public access would be controlled by locked gates on the access road within the project site boundaries. In addition, signs would be posted around the perimeter of the project site adjacent to developed lands. These signs would state “Private Property,” “No Trespassing,” and “Danger: Steep Slopes” as appropriate. All Mine Safety and Health Administration and California Division of

Occupational Safety and Health rules, regulations, and standards would be observed to protect both the public and onsite employees.

Equipment would be maintained on the project site by a service vehicle that performs regular maintenance and emergency repairs as needed. Fuel for the off-road equipment would be supplied by a fuel truck that would periodically fill equipment tanks as needed. No diesel storage tanks, above or below ground, would be used at the project site. A Spill Prevention Control and Countermeasures (SPCC) plan would guide reporting, control, and cleanup activities in the event of a spill at the project site.

Flood Stage Equipment Removal

Onsite processing and mobile equipment would be removed from the project site during periods in which the site may become inundated with floodwaters from the Sacramento River. Equipment would either be loaded onto flatbed trailers and hauled offsite or simply be driven to areas under M&T Chico Ranch ownership that are outside the 100-year floodplain. The operator would remove equipment from the site once the flood gauge on the Sacramento River at Ord Ferry Road (Lat: 39.628056, Long: -121.993056) is forecasted to reach elevation 110 feet above mean sea level (MSL), "Action Stage."

**4) Offsite Hauling**

When processed aggregate is purchased, it would be hauled offsite by the customer. Although no contracts are yet in place to purchase the aggregate mined at the project site, standard mining industry data and trucking costs indicate that aggregate is, on average, hauled 15–20 miles from the mine site for use. Because of trucking costs, 30 miles is generally the haul distance limit for aggregate.

Under the most intensive mining scenario (100,000 tons of aggregate mined per year), the project applicant anticipates a total of 4,585 haul truck trips per year to deliver processed aggregate for its ultimate use after purchase. Depending on whether mining operations are conducted year-round or seasonally, this amount of activity would result in 18–27 haul truck trips per day. Operations may be limited to 167 days per year due to the location of the mining operation and the possibility of the site being inundated by the Sacramento River during the winter months. Table 1-4 identifies trucking intensity assuming seasonal and year-round operations.

**Table 1-4. Offsite Haul Truck Usage**

| Annual Production | Tons/ Load | Days/ Year | Truck Trips/Day | Annual Trips | Scenario |
|---|---|---|---|---|---|
| 100,000 tons | 22 | 250 | 18 | 4,585 | Year-round operations |
| 100,000 tons | 22 | 167 | 27 | 4,585 | Seasonal operations |

Likely haul routes are shown in Figure 4. Based on locations of recent and predicted construction activity within a 30-mile radius of the project site, it is anticipated that the majority of aggregate produced by the proposed project would be used along the State Route 99 corridor in or near Chico.

In addition to the onsite equipment and offsite haul trucks, mining operations would require three worker vehicle trips per day to and from the project site, and it is anticipated that an average of one delivery or service vehicle visit from offsite would occur per day. It is assumed that the worker and delivery trips would originate from Chico. Employees and delivery vehicles would use Chico River Road to get to the project site, a trip of approximately 6 miles one way.

**5) Final Reclamation**

Final reclamation of the project site would take place after all material extraction activities are complete. The goals of final project site reclamation are to stabilize the soil so that erosion is controlled, to revegetate mined lands to create habitat allowing for the gradual invasion and establishment of native plant species from the surrounding undisturbed plant communities through natural successional processes, and to leave the project site suitable for post-mining open space uses. Final reclamation would involve equipment removal, restoration of remaining levee slopes, ripping compacted areas, finish grading, seed mix distribution, monitoring, maintenance, and final project site closure. All of these activities together would achieve the goals of the Reclamation Plan (Appendix A). Figures 5 and 6 illustrate the final reclaimed landform that would exist after mining and reclamation are complete. Final project site reclamation is described below.


**Figure 4**
**Haul Routes and Traffic Distribution**

**Legend**

Project Site Boundary

Rangeland Seed Mix Distribution

0 250 500

Feet

N

Source: EnviroMINE, ICF, 2017

Graphics ... 00516.14 (11/22/17) AB

ICF

**Figure 5**
**Plan View of Project Site after Final Reclamation**

## LEGEND

| DESCRIPTION | SYMBOL |
|---|---|
| EXISTING CONTOUR | 153 |
| PROPOSED CONTOUR | 133 |
| PROPOSED DAYLIGHT LINE | |

## APPLICANT

M & T RANCH
3964 CHICO RIVER ROAD
CHICO, CA 95928–9633

## OPERATOR

M & T RANCH
3964 CHICO RIVER ROAD
CHICO, CA 95928–9633
(530) 518–9954

## AGENT

ENVIROMINE, INC
3511 CAMINO DEL RIO SOUTH, SUITE 403
SAN DIEGO, CA 92108
PHONE: (619) 284–8515 FAX: (619) 284–0115

## TOPOGRAPHY SOURCE

TROUBADOUR LAND SURVEYING
DATA COLLECTED ON MARCH 18, 2015

## PROJECT LOCATION

THE M & T RANCH IS LOCATED ENTIRELY WITHIN BUTTE COUNTY, CALIFORNIA AND IS SITUATED FIVE MILES SOUTH WEST OF THE CITY OF CHICO. THE RECLAMATION PLAN (RP) AREA ADDRESS IS 3964 CHICO RIVER ROAD, CHICO, CA 95928.

## LEGAL DESCRIPTION

THE RP AREA OCCUPIES APPROXIMATELY 10 ACRES, LOCATED GENERALLY ON THE WESTERN BORDER OF THE RANCH DE FARWELL. THE RP AREA IS IDENTIFIED BY THE BUTTE COUNTY ASSESSOR TO ENCOMPASS A PORTION OF ONE APN, OWNED BY PACIFIC REALTY ASSOCIATES.

## TABLE 1 RP AREA PARCEL TABLE

| APN | TOTAL ACRES | PROPOSED ACRES FOR PROJECT | OWNER | BUTTE COUNTY GENERAL PLAN LAND USE DESIGNATION | BUTTE COUNTY ZONING |
|---|---|---|---|---|---|
| 039–530–018 | 3,542.47 | 10 | PACIFIC REALTY ASSOCIATES, LP | RL | AG (AGRICULTURE) |

## NAME OF MINERAL PROPERTY

M & T RANCH

## PROPERTY AND MINERAL RIGHTS OWNERSHIP

PACIFIC REALTY ASSOCIATES, LP
15350 SW SEQUOIA PARKWAY, SUITE 300
PORTLAND, OR 97224

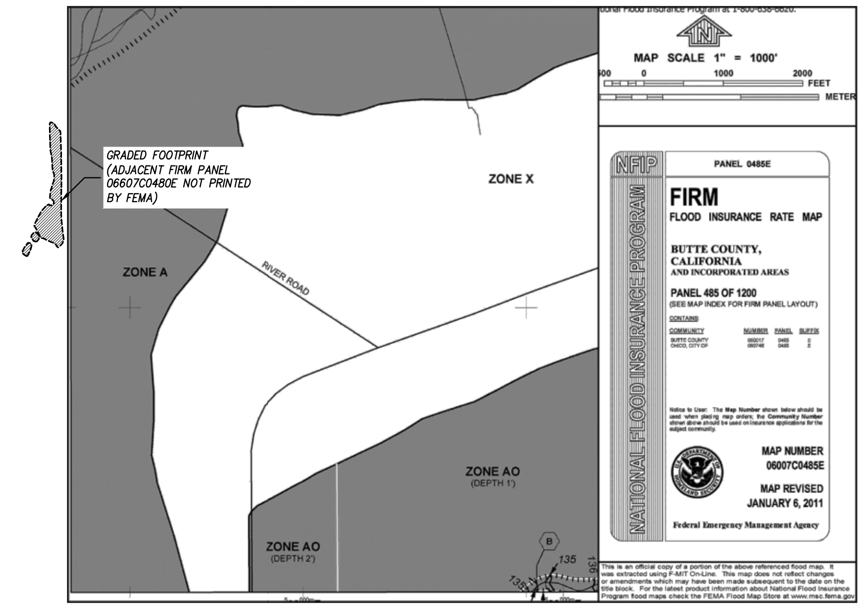
## PROJECT DESCRIPTION

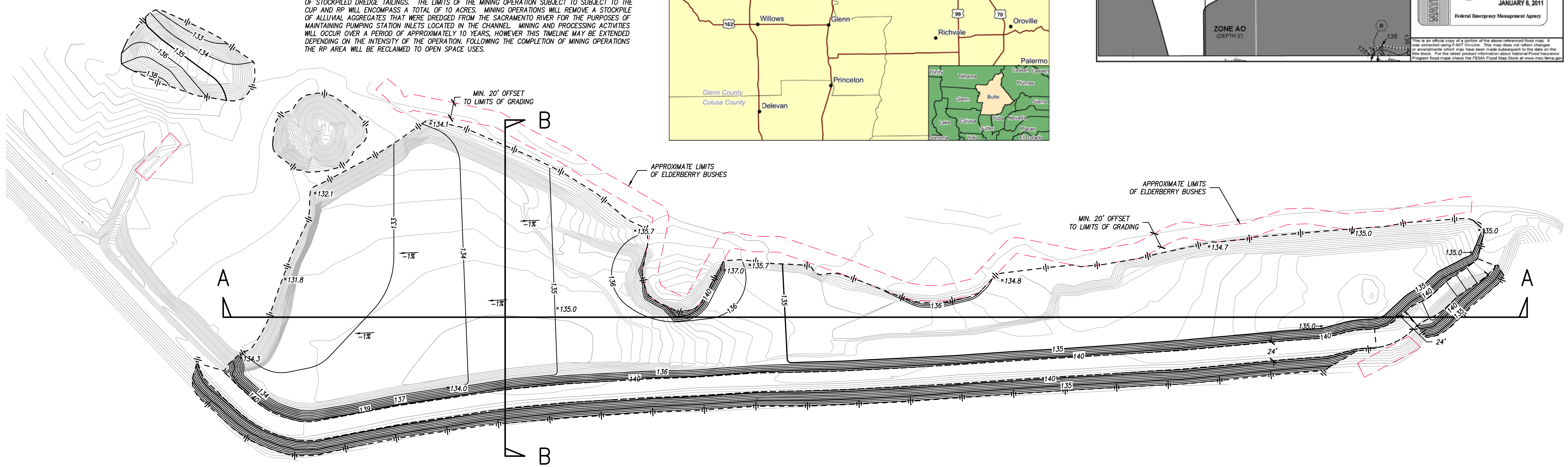
THE M & T RANCH IS AN NEW ALLUVIAL MINING OPERATION LOCATED SIX MILES SOUTH WEST OF THE CITY OF CHICO IN AN UNINCORPORATED AREA OF BUTTE COUNTY. M&T RANCH ("APPLICANT") IS APPLYING FOR A CONDITIONAL USE PERMIT ("CUP") AND RECLAMATION PLAN ("RP").

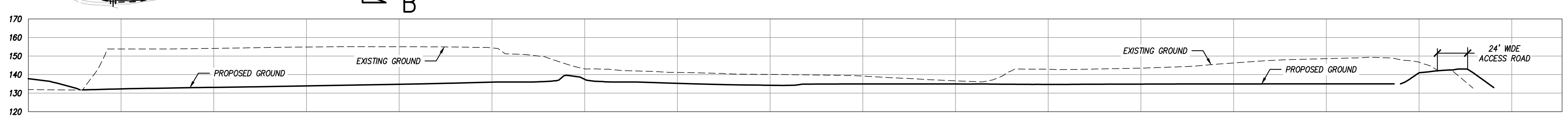
APPROVAL OF THE CUP WOULD ALLOW MINING OPERATIONS TO REMOVE APPROXIMATELY 300,000 TONS OF STOCKPILED DREDGE TAILINGS. THE LIMITS OF THE MINING OPERATION SUBJECT TO SUBJECT TO THE CUP AND RP WILL ENCOMPASS A TOTAL OF 10 ACRES. MINING OPERATIONS WILL REMOVE A STOCKPILE OF ALLUVIAL AGGREGATES THAT WERE DREDGED FROM THE SACRAMENTO RIVER FOR THE PURPOSES OF MAINTAINING PUMPING STATION INLETS LOCATED IN THE CHANNEL. MINING AND PROCESSING ACTIVITIES WILL OCCUR OVER A PERIOD OF APPROXIMATELY 10 YEARS, HOWEVER THIS TIMELINE MAY BE EXTENDED DEPENDING ON THE INTENSITY OF THE OPERATION. FOLLOWING THE COMPLETION OF MINING OPERATIONS THE RP AREA WILL BE RECLAIMED TO OPEN SPACE USES.

## REGIONAL LOCATION MAP

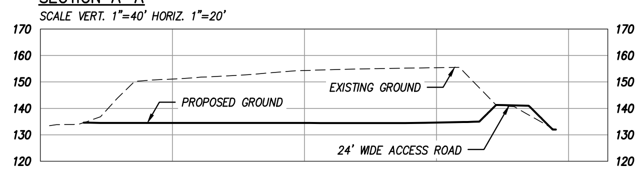

## FLOOD INSURANCE RATE MAP




SECTION A–A
SCALE VERT. 1"=40' HORIZ. 1"=20'




SECTION B–B
SCALE VERT. 1"=40' HORIZ. 1"=20'

N

0 100 200
Feet

Source: EnviroMINE, 2017

Graphics ... 00516.14 (11/21/17) AB

ICF

**Figure 6**
**Proposed Topography after Final Project Site Reclamation**

**a. Final Slope Grading, Decompaction, and Road Reclamation**

Mining activities would remove a stockpile of material that is roughly 20 feet in height and leave a fairly level area that has a final elevation of approximately 135 feet MSL. Final grading of the project site is intended to return the site to a condition that existed prior to stockpiling of alluvial aggregates, while providing for proper drainage. Low areas in the topography would be filled, and hummocks and sand mounds would be flattened, providing stable drainage. In general, the area would be graded at 1 to 2 percent to direct runoff away from the Sacramento River and Big Chico Creek toward several low-lying areas where water would percolate into the subsurface or evaporate. Along the eastern limits of the Excavation/Operation Area, the slope of the adjacent levee would be reestablished to 2:1, and the road on top of the levee would remain in place to provide landowner and levee inspection access.

In addition to grading the site to contour the topography for drainage purposes, compacted areas of the project site would be ripped to a depth of at least 6 inches to decompact the surface in preparation for revegetation. All soil surfaces that are to be revegetated would be left in as rough a condition as possible to create small cracks and crevices to improve water filtration and in which to allow seeds to lodge. Areas where existing vegetation is established and proper drainage exists would not require grading to achieve reclamation.

**b. Revegetation**

Revegetation would follow the completion of all mining activities. Final landforms reached during ongoing mining operations would be revegetated only if it is determined that no further aggregates would be stockpiled in that specific area.

The growth medium (topsoil) used for revegetation would consist of salvaged growth medium and wash fines collected during processing operations. The proportions of growth medium and any additions or amendments, as well as distribution of the growth medium, would be guided by the test plot data described in Sections 4.4 through 4.6 of the Reclamation Plan (Appendix A). Any soil amendments would be free of exotic species to avoid accidental introduction.

Revegetation of the project site would be completed using distribution of a single seed mix composed of native species that are located in the vicinity; the seed mix is referred to as the “rangeland seed mix.” The rangeland seed mix would provide vegetative cover on all areas of the project site that have been disturbed from mining activities. The rangeland seed mix was designed to propagate quickly to stabilize the soil, provide adequate cover for post-mining open space land, use and to be self-sustaining without human intervention. The seed mix itself was designed based on the results of baseline studies described in Attachment B of the Reclamation Plan. The seed mix and distribution rates may be adjusted as needed depending on species availability and the results from the test plots described in Section 4.6 of the Reclamation Plan (Appendix A). The rangeland seed mix would also serve as an erosion control seed mix and cover for stockpiles if needed during mining operations. Table 1-5 breaks down the components of the proposed rangeland seed mix.

**Table 1-5. Rangeland Seed Mix**

| Common Name | Scientific Name | Mix |
|---|---|---|
| California brome | Bromus carinatus | 10 pounds/acre |
| Blue wild-rye | Elymus glaucus | 12 pounds/acre |
| Lana wooly pod vetch | Vicia villosa | 7 pounds/acre |
| Purple needlegrass | Nassella pulchra | 3 pounds/acre |
| California poppy | Eschscolzia californica | 3 pounds/acre |
| Deergrass | Muhlenbergia rigens | 5 pounds/acre |
| Red fescue | Festuca rubra | 10 pounds/acre |
| **Total** | | **50 pounds/acre** |

Distribution methods such as hydroseeding, broadcast seeding, drill seeding, and imprint seeding may be used for the application of the seed mix. All seeding should be performed and completed between October 15 and December 15. Planting should be timed to occur with the first soaking rains of the season because the beneficial temperatures and anticipated rainfall would aid in germination and establishment.

### c. Vegetation Maintenance and Monitoring

Maintenance of the revegetation areas shall consist of reseeding unsuccessful revegetation efforts, weed eradication to limit and control invasive noxious weeds, and repair of erosion damage.

Revegetation Monitoring and Success Criteria

The revegetation efforts would be monitored to ensure that revegetation conforms to the goals shown in Table 1-6, and to evaluate the progress of the revegetation effort so that any necessary remedial measures can be recommended in a timely manner.

**Table 1-6. Revegetation Performance Standards**

| Vegetative Type | Species Composition/ Species Richness | Percent Cover | Test Plot Size |
|---|---|---|---|
| Rangeland seed mix | 2 or more of the most prevalent species shall be from the rangeland seed mix | 60% cover (all species combined) | 80-square-foot plot |

Sampling plots would be selected randomly throughout the areas hydroseeded with the rangeland seed mix to determine native species richness and percent cover of each seed mix. The number of plots for the hydroseeded areas would be selected in order to achieve an 80 percent confidence level in the performance results.

During monitoring visits to the project site, the revegetation efforts would be examined by evaluating the following:

- The success of stabilizing the soil so that soil erosion is controlled over the short or long term.
- The success of re-establishing favorable soil conditions would be monitored so that open space can become established.
- The success of establishing habitat conditions on the excavated areas that are favorable for the gradual invasion and establishment of the native flora to the project site from the surrounding areas.
- The presence of pests and pest damage to make sure that potentially harmful infestations do not occur.

Monitoring of the project site would be conducted by a qualified biologist on an annual basis until performance standards over all areas disturbed by mining operations within the project site are attained. Annual assessment reports and project site reviews would assess the success of the seed mix and amend the ratios as appropriate based on the progress of revegetation. Redistribution of the seed mix may be necessary to meet performance standards.

Weed Management

Noxious weed inspections would be made in conjunction with revegetation monitoring unless conditions warrant more frequent inspections. Eradication measures would be taken when noxious weed species are detected at threshold levels of one plant per less than 100 square feet. Weed removal would be accomplished through manual, mechanical, or chemical methods, depending on the specific circumstances.

Contingency Planting

If revegetation efforts are not successful according to the success criteria within 2 years following the initial seeding and planting, the revegetated areas would be reevaluated to determine the necessary measures to improve revegetation success.

If further revegetation is necessary, modified methods would be used, which may include the use of container stock and irrigation, or simple reseeding during a wet winter season. Prior to reseeding or planting, the revegetation specialist would evaluate previous revegetation practices and test plot results in an attempt to identify methods to benefit the overall revegetation effort. If after the project site is reseeded or planted and revegetation efforts still do not yield satisfactory results, additional reseeding or other intervention methods may be required.

**M.** **Public Agency Approvals:** This initial study was prepared in accordance with Article 5, Section 15060 et seq. of the State CEQA Guidelines (California Code or Regulations [CCR], Title 14, Division 6, Chapter 3). It describes the existing environmental resources in the project vicinity, evaluates the environmental impacts of the proposed project on these resources, and identifies mitigation measures to avoid or reduce any potentially significant impacts to a less-than-significant level.

The CEQA Lead Agency, the Butte County Department of Development Services, will consider the findings of this initial study in determining (1) whether preparation of an environmental impact report (EIR) is necessary prior to implementation of the proposed project and (2) whether to issue a Conditional Use Permit (CUP), Mining Permit, and Reclamation Plan for the proposed project. The initial study will also be used by multiple responsible, trustee, and cooperating agencies in taking action under CEQA and other state regulations to authorize implementation of the proposed project. The anticipated permits necessary for implementation of the proposed project include the following:

- California Department of Fish and Wildlife (CDFW), Fish and Game Code Section 1602 Lake and Streambed Alteration Agreement (SAA).
- Central Valley Flood Protection Board (CVFPB), Title 23 Encroachment Permit.
- Central Valley Regional Water Quality Control Board, Clean Water Act (CWA) Section 402 SWPPP.
- Butte County Department of Public Works, Encroachment Permit for access road improvements at River Road.

# Environmental Checklist

## 2.0 POTENTIALLY SIGNIFICANT EFFECTS CHECKLIST SETTING

## Environmental Factors Potentially Affected

Project impacts to the environmental factors checked below could be potentially significant; however, with the incorporation of mitigation measures, project related impacts are reduced to a “less than significant” level (CEQA Guidelines 15382).

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

## 3.0 DETERMINATION

On the basis of this initial evaluation:

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

Prepared by: Sara Martin
ICF

Date 5/15/19

Reviewed by: Rowland Hickel
Senior Planner

Date 5.15.2019

## Evaluation of Environmental Impacts

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

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

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

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

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

a) Earlier Analysis Used. Identify and state where they are available for review.

   a. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   b. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures, which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

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

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

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

9. The explanation of each issue should identify:

c. The significance criteria or threshold, if any, used to evaluate each question; and

d. The mitigation measure identified, if any, to reduce the impact to less than significance

# 4.0 ENVIRONMENTAL IMPACTS

## 4.1 Aesthetic/Visual Resources

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Have a substantial adverse effect on a scenic vista? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **b.** Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **c.** Substantially degrade the existing visual character or quality of the site and its surroundings? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **d.** Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | ☐ | ☐ | ☒ | ☐ | ☐ |

## Setting

The project site is located in a rural agricultural area west of the City of Chico, immediately south of River Road and east of Big Chico Creek and just less than 0.25 mile east of the Sacramento River. The project site is composed of an existing stockpile of alluvial aggregates that is vegetated with ruderal grasses. Orchards lie to the east and south of the project site, while riparian corridors associated with the creek and river are located to the north and west. The orchards, roadside trees and shrubs, and riparian vegetation along Big Chico Creek limit views to the immediate foreground so that there are no scenic vista views associated with the project site. The Sacramento River National Wildlife Refuge is located west of the river, but riparian vegetation along the river and creek prevent views of the project site from the refuge. Views of the Sierra Nevada Mountains and the Cascade Range foothills can be seen in some locations where orchard access roads or lower growing trees allow for brief and very limited views of these features. In addition, as described under *Regulatory Setting*, there are no scenic roadways located near the project site.

The project site is privately owned and closed to public. Views of the site are primarily available, for a few moments in passing, to roadway users and recreationists (e.g., cyclists) using River Road. Orchards and roadside vegetation and the slight curvature of the roadway prevents direct views of the project site that last any longer than a few seconds as these viewers travel along the road. Water-based recreational viewers are also present because Big Chico Creek has a public access point and boat launch that is located immediately north of River Road, on the western side of the creek. However, during much of the year, the creek is at a lower elevation than the project site and views of the project site are not available from the creek because of the elevation difference and dense riparian vegetation that screens views of the site. Direct views of the project site are also not very likely from the creek during higher flows because water-based recreationists are not likely to use the creek during such times because of safety concerns and the inability to pass under the River Road bridge. Because extended, unobscured views of the site are not available, land and water-based viewers are likely to have moderately low visual sensitivity to changes at the project site.

The visual character of the project vicinity is typical of other reaches upstream and downstream of the project site where riparian vegetation and orchards are prevalent; therefore, the resulting visual quality of the project vicinity is moderate. The visual quality of the project site itself is moderately low because the alluvial stockpiles contribute to the site being visually degraded from past human disturbances. There is no artificial lighting associated with the project site or the area immediately surrounding the project site. Glare is also limited because the surrounding orchards and riparian vegetation provide shade and prevent nuisance glare.

### Regulatory Setting

There are no federal or state policies related to visual resources that apply to the implementation of the proposed project. In addition, there are no state-designated scenic roadways located near the project site (California Department of Transportation 2017).

#### Butte County General Plan 2030

The Butte County General Plan 2030 (General Plan) establishes the Sacramento River and its riparian corridor is a scenic resource for its rich habitat and beautiful view and that orchards and other blossoming trees are a scenic resource due to the seasonal visual interest they provide. There are no County-designated Scenic Highways located near the project site (County of Butte 2018:10-47, 10-49, 10-51). The Water Resources Element and Conservation and Open Space Element contain the following relevant goal and policy.

**Goal COS-17**: Maintain and enhance the quality of Butte County's scenic and visual resources.

**COS-P17.1** Views of Butte County's scenic resources, including water features, unique geologic features and wildlife habitat areas, shall be maintained.

## Impact Discussion

***a. Have a substantial adverse effect on a scenic vista?***

As described in the *Setting* section, there are no scenic vistas associated with the project site. Therefore, there would be no impact on scenic vistas.

***b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?***

As described in the *Regulatory Setting* section, there are no federal, state, or local scenic routes associated with the project site. Therefore, there would be no impact on scenic routes.

***c. Substantially degrade the existing visual character or quality of the site and its surroundings?***

Site preparation may require that some vegetation along River Road be removed to accommodate the access road. This would make views to the site slightly more apparent from River Road, but views would still be very brief and in passing. These views would consist of the heavy equipment needed to excavate the stockpiled materials and transport it to the portable crushing plant and screening plant that would be located onsite. However, orchards, riparian vegetation, and stockpiled materials would partially obscure views of the mining equipment so that it would not greatly detract from views of the site. The project site access road would look very much like the existing levee that is present along the access road alignment. The tops of heavy equipment at the project site may also be visible from Big Chico Creek where the bend in the creek comes close to the project site. However, the dense riparian vegetation would likely provide adequate screening so that the equipment would not dominate views or create a notable visual distraction when seen from the creek. In addition, during higher flows, the project site would be cleared of all mining equipment so that the equipment would not be visible from the creek. Haul trucks would also be seen being loaded and entering and exiting the site. These trucks would not result in a notable visual change when seen on haul routes because they would be consistent with the trucks used for transporting agricultural goods and other resources within the project vicinity and larger region. The temporary above-ground pipeline connecting the pumping plant to the Excavation/Operation Area would not be visible to affected viewer groups because the pipeline would be located away from areas public views are available.

Viewers passing by on River Road would be able to see the height of the stockpiled materials slowly decrease so that the piles of aggregate would be no longer be visible, over time, and a relatively level area of land would remain when operations cease. Once mining operations are complete, this area would be graded to a natural grade that allows for adequate site drainage. The area would also be revegetated with a rangeland seed mix so that the site would be re-established with grasses and forbs, resulting in improved visual conditions at the site. In addition, trees and shrubs would naturally recolonize the site in time so that the site would take on a more natural appearance as the years progress. Therefore, impacts on visual character and quality would be less than significant during operation and reclamation.

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

Mining operations would occur between 7 a.m. and 4 p.m. and would not require the use of lighting to illuminate extraction and processing activities. Truck lights would be used in the winter during hauling because the mornings are darker. However, truck traffic would not be permanent and would only be present for a short period of time before the truck is loaded and then leaves the project site. Therefore, lighting would not adversely affect daytime or nighttime views of associated with the project site or the areas surrounding the project site. There would also be no negative impacts associated with glare because vegetation removal would be very minimal, the equipment would not have highly reflective surfaces, and revegetation during reclamation would decrease glare. Therefore, impacts related to light and glare would be less than significant.

## 4.2 Agriculture Resources

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **b.** Conflict with existing zoning for agricultural use, or a Williamson Act Contract? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **c.** Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **d.** Result in the loss of forest land or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **e.** Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ☒ | ☐ |

## Introduction

This section analyzes the project's potential impacts on agricultural resources. It describes the existing conditions in the project vicinity, summarizes local regulatory frameworks, and analyzes the potential for the project to impact agricultural resources.

## Environmental Setting

Please see Section 1.0 "*Project Information*" for a general description of the land surrounding the project site. As identified in that section, land use is predominantly dominated by intensive commercial agriculture. Some areas contain wetlands, riparian habitat, and valley oak woodland. The Farmland Mapping and Monitoring Program (FMMP) classifies the land within the project site as "Other Land" (California Department of Conservation 2017). The FMMP is a non-regulatory program intended to aid in assessing the location, quality, and quantity of agricultural lands and conversion of such lands over time. The FMMP rates agricultural land according to soil quality and irrigation status. "Other Land" is defined as follows:

> Other Land is land not included in any other mapping category. Common examples include low-density rural developments, brush, timber, wetland, and riparian areas not suitable for livestock grazing, confined livestock, poultry, or aquaculture facilities, strip mines, borrow pits, and water bodies smaller than 40 acres.

## Regulatory Setting

The following section summarizes applicable agricultural regulatory information that applies to the project site.

### Butte County Zoning Ordinance

Butte County has zoned the parcel within which the project site is located as Agriculture, with a minimum parcel size of 160 acres (Butte County Development Services 2018). The purpose of the "Agriculture (AG)" zoning designation is to support, protect, and maintain a viable, long-term agricultural sector in Butte County. Permitted uses include crop cultivation, animal grazing, stock ponds, and agricultural processing. Mining and surface mining operations on lands zoned as AG require the approval of a CUP from Butte County (County of Butte 2013: 15-16).

### Williamson Act

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is a state policy administered at the local government level. The Williamson Act is intended to preserve agricultural and open space lands through contracts with private landowners. By entering into a Williamson Act contract, the landowner foregoes the possibility of converting agricultural land to non-agricultural use for a rolling period of 10 years in return for lower property taxes. Local governments receive an annual subvention of foregone property tax revenues from the state via the Open Space Subvention Act of 1971. The project site lies within a parcel that is currently under a Williamson Act contract (Butte County Development Services Department 2018). Under Section 51201(e) of the California Government Code, uses compatible with a Williamson Act contract include agricultural use, recreational use, open space use, or any use determined by the administering county to be compatible with the land subject to contract.

## Impact Discussion

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

The FMMP classifies the land within the project site as "Other Land." The project would not affect any lands classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. There would be no impact.

***b. Conflict with existing zoning for agricultural use, or a Williamson Act Contract?***

The project site is located within a parcel zoned by Butte County as Agriculture (AG) and is currently under a Williamson Act contract. Surface mining is permitted in AG zones with the approval of a CUP. M&T Ranch submitted an application for a CUP to the Butte County Department of Development Services on March 28, 2016, which triggered this CEQA analysis. Approval of the CUP by the Butte County Planning Commission is conditional upon a determination by the Butte County Board of Supervisors that the proposed use is consistent with the Williamson Act program. The project will only be implemented if Butte County Board determines that the proposed use is consistent with the Williamson Act, and if the CUP is approved; therefore, this impact would be less than significant.

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

The parcel containing the project site is zoned by Butte County as “Agriculture.” The project would not affect any lands zones for forest land or timberland. There would be no impact.

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

The project is located on land that is disturbed and unvegetated. It would not affect any forest land. There would be no impact.

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

The project site is not located within FMMP-designated farmland, nor is it located within forest land. However, as described in Section 1.0, upon project completion, the project site would be reclaimed and revegetated with native plants to ensure the site is suitable for post-mining open space uses. The project would not cause any permanent changes to the existing environment that would preclude future agricultural operations. There would be no impact.

## 4.3 Air Quality

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Conflict with or obstruct implementation of the applicable air quality plan? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **b.** Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **c.** Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **d.** Expose sensitive receptors to substantial pollutant concentrations? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **e.** Create objectionable odors affecting a substantial number of people? | ☐ | ☐ | ☒ | ☐ | ☐ |

## Setting

### Introduction

This section analyzes the proposed project's potential impacts related to air quality. It describes existing conditions in the project vicinity and summarizes the overall federal, state, and local regulatory framework for air quality, and it analyzes the potential for the proposed project to affect air quality.

### Background Information on Air Pollutants

Air quality studies generally focus on five pollutants most commonly measured and regulated, and referred to as criteria air pollutants: $O_3$, carbon monoxide (CO), inhalable particulate matter (PM), nitrogen dioxide ($NO_2$), and sulfur dioxide ($SO_2$). Because $O_3$, a photochemical oxidant, is not emitted into the air directly from sources, emissions of $O_3$ precursors, including nitrogen oxides ($NO_X$) and reactive organic gases (ROG), are regulated with the aim of reducing $O_3$ formation in the lowermost region of the troposphere.

$O_3$ and $NO_2$ are considered regional pollutants because they (or their precursors) affect air quality on a regional scale: $NO_2$ reacts photochemically with ROG to form $O_3$, and this reaction occurs at some distance downwind of the source of pollutants. Pollutants such as CO, PM10, and PM2.5 are considered to be local pollutants because they tend to disperse rapidly with distance from the source.

The principal characteristics surrounding these pollutants are discussed below. Toxic air contaminants (TACs) are also discussed below, although no air quality standards exist for these pollutants.

#### Ozone

$O_3$ is an oxidant that attacks synthetic rubber, textiles, and other materials and causes extensive damage to plants by leaf discoloration and cell damage. It is also a severe eye, nose, and throat irritant and increases susceptibility to respiratory infections. $O_3$ is not emitted directly into the air; it forms from a photochemical reaction in the atmosphere. $O_3$ precursors, including ROG and $NO_X$, are emitted by mobile sources and stationary combustion equipment and react in the presence of sunlight to form $O_3$. Because reaction rates depend on the intensity of ultraviolet light and air temperature, $O_3$ is primarily a summertime problem.

### Carbon Monoxide

CO is essentially inert to most materials and to plants but can significantly affect human health because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. Effects on humans range from slight headaches to nausea and death. Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter, when periods of light wind combine with the formation of ground-level temperature inversions—typically from evening through early morning. These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

### Particulate Matter

PM refers to finely divided solids or liquids, such as soot, dust, aerosols, and mists. Coarse PM with an aerodynamic diameter of 10 microns or less is referred to as PM10. A subgroup of finer particles that have an aerodynamic diameter of 2.5 microns or less is referred to as PM2.5. Suspended particulates aggravate chronic heart and lung disease problems, produce respiratory problems, and often transport toxic elements. They also absorb sunlight, producing haze and reducing visibility.

PM10 and PM2.5 are caused primarily by dust from grading and excavation activities, agricultural uses, and motor vehicles, particularly diesel-powered vehicles. These particles pose a greater health risk than larger particles because these fine particles can more easily penetrate the defenses of the human respiratory system. Chronic exposure to PM10 and PM2.5 can lead to respiratory disease and cause lung damage and cancer.

### Nitrogen Dioxide

$NO_2$ is a brownish gas that contributes to the formation of ground-level $O_3$ pollution. $NO_2$ increases respiratory disease and irritation and may reduce resistance to certain infections. The majority of ambient $NO_2$ is not directly emitted but is formed rather quickly from the reaction of nitric oxide (NO) and oxygen in the atmosphere. NO and $NO_2$ are the primary pollutants that make up the group of pollutants referred to as $NO_X$. In the presence of sunlight, complex reactions of $NO_X$ with $O_3$ and other air pollutants produce the majority of $NO_2$ in the atmosphere. $NO_2$ is one of the $NO_X$ emitted from high-temperature combustion processes, such as those occurring in trucks, cars, and power plants. Indoors, home heaters and gas stoves also produce substantial amounts of $NO_2$.

### Sulfur Dioxide

$SO_2$ is a colorless, irritating gas with a “rotten egg” smell, formed primarily by the combustion of sulfur-containing fossil fuels. $SO_2$ is formed when sulfur-containing fuel is burned by mobile sources, such as locomotives and off-road diesel equipment. $SO_2$ also is emitted from several industrial processes, such as petroleum refining and metal processing.

### Toxic Air Contaminants

TACs are pollutants that may result in an increase in mortality or serious illness, or that may pose a present or potential hazard to human health. Health effects of TACs include cancer, birth defects, neurological damage, damage to the body’s natural defense system, and diseases that lead to death. In 1998, following a 10-year scientific assessment process, the California Air Resources Board (ARB) identified PM from diesel-fueled engines—commonly called diesel particulate matter (DPM)—as a TAC.

Compared with other air toxics ARB has identified, DPM emissions are estimated to be responsible for about 70% of the total ambient air toxics risk (California Air Resources Board 2000:1).

## Existing Conditions

This section discusses the existing conditions related to air quality in the air quality study area.

### Climate and Meteorology

The project site is in Butte County, which is located in the Sacramento Valley Air Basin (SVAB). The SVAB is bounded on the north by the Cascade Range, on the south by the San Joaquin Valley Air Basin, on the east by the Sierra Nevada, and on the west by the Coast Ranges.

The SVAB has a Mediterranean climate characterized by hot, dry summers and cool, rainy winters. During winter, the North Pacific storm track intermittently dominates Sacramento Valley weather, and fair weather alternates with periods of extensive clouds and precipitation. Periods of dense and persistent low-level fog, which are most prevalent between storms, are also characteristic of winter weather in the valley. The frequency and persistence of heavy fog in the valley diminish with the approach of spring. The average yearly temperature range for the Sacramento Valley is 20°F to 115°F, with summer high temperatures often exceeding 90°F and winter low temperatures occasionally dropping below freezing.

In general, the prevailing winds are moderate in strength and vary from moist clean breezes from the south to dry land flows from the north. The mountains surrounding the SVAB create a barrier to airflow, which can trap air pollutants under certain meteorological conditions. The highest frequency of air stagnation is during the autumn and early winter when large high-pressure cells collect over the Sacramento Valley. The lack of surface wind during these periods and the reduced vertical flow caused by less surface heating reduce the influx of outside air and allow air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with temperature inversions that trap pollutants near the ground.

The Ozone ($O_3$) season (May through October) in the Sacramento Valley is characterized by stagnant morning air or light winds with the Delta sea breeze arriving in the afternoon out of the southwest. Usually the evening breeze transports the airborne pollutants to the north out of the Sacramento Valley. During about half of the days from July to September, however, a phenomenon called the “Schultz Eddy” prevents this from occurring. Instead of allowing the prevailing wind patterns to move north carrying the pollutants out, the Schultz Eddy causes the wind pattern to circle back to the south. Essentially, this phenomenon causes the air pollutants to be blown south toward the Sacramento Valley and Yolo County. This phenomenon has the effect of exacerbating the pollution levels in the Sacramento Valley and increases the likelihood of violating federal or state standards. The eddy normally dissipates around noon, when the Delta sea breeze arrives (Sacramento Metropolitan Air Quality Management District 2016).

### Local Air Quality Conditions

The existing air quality conditions in the project vicinity can be characterized by monitoring data collected in the region. There are a number of air quality monitoring stations in Butte County, the closest of which with current data is the Chico East Avenue Station, which is located 6.5 miles northeast of the project site.

Table 4.3-1 summarizes air quality monitoring data from the Chico East Avenue monitoring station for the last 3 years for which complete data are available (2015–2017). As shown in this table, these stations have experienced occasional violations of the state 1-hour $O_3$ and PM10, and national PM2.5 standards, and more frequent violations of the state and federal 8-hour $O_3$ standards.

**Table 4.3-1. Ambient Air Quality Monitoring Data Measured at the Chico East Avenue Monitoring Station**

| | 2015 | 2016 | 2017 |
|---|---|---|---|
| 1-hour $O_3$ (ppm) | | | |
| Maximum 1-hour concentration | 0.080 | 0.080 | 0.076 |
| 1-hour California designation value | 0.08 | 0.08 | 0.08 |
| 1-hour expected peak day concentration | 0.077 | 0.078 | 0.076 |
| Number of days standard exceeded:[a] | | | |
| CAAQS 1-hour (>0.09 ppm) | 0 | 0 | 0 |
| 8-hour $O_3$ (ppm) | | | |
| National maximum 8-hour concentration | 0.069 | 0.073 | 0.069 |
| National second-highest 8-hour concentration | 0.068 | 0.070 | 0.068 |
| State maximum 8-hour concentration | 0.069 | 0.074 | 0.070 |
| State second-highest 8-hour concentration | 0.069 | 0.070 | 0.068 |
| 8-hour national designation value | 0.066 | 0.066 | 0.066 |
| 8-hour California designation value | 0.071 | 0.074 | 0.070 |
| 8-hour expected peak day concentration | 0.072 | 0.074 | 0.073 |
| Number of days standard exceeded:[a] | | | |
| NAAQS 8-hour (>0.070 ppm) | 0 | 1 | 0 |
| CAAQS 8-hour (>0.070 ppm) | 0 | 1 | 0 |
| CO (ppm) | | | |
| Maximum 8-hour concentration | 1.3 | 1.4 | 1.4 |
| Second-highest 8-hour concentration | 1.2 | 1.3 | 1.4 |
| Maximum 1-hour concentration | 1.6 | 1.7 | 1.9 |
| Second-highest 1-hour concentration | 1.5 | 1.7 | 1.7 |
| Number of days standard exceeded:[a] | | | |
| NAAQS 8-hour ($\geq$9.0 ppm) | 0 | 0 | 0 |
| NAAQS 1-hour ($\geq$35.0 ppm) | 0 | 0 | 0 |
| Particulate matter (PM10)[d] ($\mu g/m^3$) | | | |
| National[b] maximum 24-hour concentration | 67.8 | 58.1 | 101.3 |
| National[b] second-highest 24-hour concentration | 67.6 | 57.0 | 86.2 |
| State[c] maximum 24-hour concentration | 66.4 | 57.0 | 101.4 |
| State[c] second-highest 24-hour concentration | 65.5 | 56.6 | 87.2 |
| State annual average concentration[e] | - | 20.6 | - |
| National annual average concentration | 21.6 | 20.8 | 22.8 |
| Number of days standard exceeded:[a] | | | |
| NAAQS 24-hour (>150 $\mu g/m^3$)[f] | 0 | 0 | 0 |

| | 2015 | 2016 | 2017 |
|---|---|---|---|
| CAAQS 24-hour (>50 $\mu g/m^3$)[f] | 8 | 8 | 14 |
| Particulate matter (PM2.5) ($\mu g/m^3$) | | | |
| National[b] maximum 24-hour concentration | 39.0 | 37.2 | 45.2 |
| National[b] second-highest 24-hour concentration | 37.9 | 26.8 | 35.7 |
| State[c] maximum 24-hour concentration | 39.0 | 45.9 | 47.0 |
| State[c] second-highest 24-hour concentration | 37.9 | 36.3 | 41.2 |
| National annual designation value | 29 | 26 | 28 |
| National annual average concentration | 9.1 | 7.6 | 9.0 |
| State annual designation value | 9 | 9 | - |
| State annual average concentration [e] | - | - | - |
| Number of days standard exceeded:[a] | | | |
| NAAQS 24-hour (>35 $\mu g/m^3$)[f] | 2 | 1 | 2 |

Sources: California Air Resources Board 2018; U.S. Environmental Protection Agency 2018a.

$\mu g/m^3$ = micrograms per cubic meter.

CAAQS = California Ambient Air Quality Standards.
CO = carbon monoxide.
NAAQS = National Ambient Air Quality Standards.
$O_3$ = ozone.

PM2.5 = particulate matter 2.5 microns or less in diameter.

PM10 = particulate matter 10 microns or less in diameter.

ppm = parts per million.

– = insufficient data available to determine the value.

[a] An exceedance is not necessarily a violation.

[b] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[c] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California approved samplers.

[d] Measurements usually are collected every 6 days.

[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[f] Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored. Values have been rounded.

### Air Quality Attainment Status

Local monitoring data (Table 4.3-1) are used to designate areas as nonattainment, maintenance, attainment, or unclassified for the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The four designations are further defined as follows.

- **Nonattainment—**assigned to areas where monitored pollutant concentrations consistently violate the standard in question.

- **Maintenance—**assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.
- **Attainment—**assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- **Unclassified—**assigned to areas were data are insufficient to determine whether a pollutant is violating the standard in question.

Table 4.3-2 summarizes the attainment status of Butte County with regard to the NAAQS and CAAQS.

**Table 4.3-2. Federal and State Attainment Status of Butte County**

| Pollutant | NAAQS | CAAQS |
|---|---|---|
| 8-hour $O_3$ | Marginal Nonattainment | Nonattainment |
| CO | Attainment | Attainment |
| PM2.5 | Moderate Nonattainment | Nonattainment |
| PM10 | Attainment | Nonattainment |

Sources: California Air Resources Board 2017; U.S. Environmental Protection Agency 2018b.

CO = carbon monoxide.

$O_3$ = ozone.

PM2.5 = particulate matter 2.5 microns or less in diameter.

PM10 = particulate matter 10 microns or less in diameter.

### Sensitive Receptors

Sensitive receptors are frequently occupied locations where people who might be especially sensitive to air pollution are expected to live, work, or recreate. These types of receptors include residences, schools, churches, health care facilities, convalescent homes, and daycare centers. The project site is located in a rural area, with considerable distances (in excess of 1,000 feet) between the areas where the project would be implemented and the nearest receptors. Table 4.3-3 lists sensitive receptors that were identified in the project vicinity and the distances from the project site.

**Table 4.3-3. Sensitive Receptors in the Project Vicinity**

| Sensitive Receptor | Distance from Project Site to Receptor |
|---|---|
| Residence off River Road | 1,050 feet northeast |
| Residence off River Road | 4,270 feet east |

Note: Sensitive receptors and distances in this table were obtained using Google Earth imagery

## Regulatory Setting

At the federal level, air quality in the United States and California is governed by the Clean Air Act (CAA), which is administered by the Environmental Protection Agency (EPA). Air quality in the state also is governed by more stringent regulations in the California Clean Air Act (CCAA), administered by ARB and the local air quality management districts. ARB and local air districts have primary implementation responsibility for both the federal and state air quality standards. This section summarizes key federal, state, and local regulatory information that applies to air quality.

## Federal

The following federal policies related to air quality may apply to implementation of the proposed project.

### Clean Air Act and National Ambient Air Quality Standards

The federal CAA, promulgated in 1963 and amended several times thereafter, including the 1990 Clean Air Act amendments, establishes the framework for modern air pollution control. The act directs EPA to establish NAAQS for the six criteria pollutants: $O_3$, CO, lead (Pb), $NO_2$, $SO_2$, PM, which consists of PM10 and PM2.5. The NAAQS are divided into primary and secondary standards; the former are set to protect human health within an adequate margin of safety, and the latter to protect environmental values, such as plant and animal life. Table 4.3-4 summarizes the NAAQS.

The CAA requires states to submit a State Implementation Plan (SIP) for areas in nonattainment for federal standards. The SIP, which is reviewed and approved by EPA, must demonstrate how the federal standards would be achieved. Failing to submit a plan or secure approval could lead to denial of federal funding and permits. In cases where the SIP is submitted by the state but fails to demonstrate achievement of the standards, EPA is directed to prepare a federal implementation plan.

**Table 4.3-4. Ambient Air Quality Standards Applicable in California**

| | | | Standard (ppm) | | Standard (μg/m$^3$) | | Violation Criteria | |
|---|---|---|---|---|---|---|---|---|
| Pollutant | Symbol | Average Time | California | National | California | National | California | National |
| Ozone[c] | $O_3$ | 1 hour | 0.09 | – | 180 | – | If exceeded | – |
| | | 8 hours | 0.070 | 0.070 | 137 | 137 | If exceeded | If fourth-highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor in an area |
| Carbon monoxide | CO | 8 hours | 9.0 | 9 | 10,000 | 10,000 | If exceeded | If exceeded on more than 1 day per year |
| | | 1 hour | 20 | 35 | 23,000 | 40,000 | If exceeded | If exceeded on more than 1 day per year |
| (Lake Tahoe only) | | 8 hours | 6 | – | 7,000 | – | If equaled or exceeded | – |
| Nitrogen dioxide | $NO_2$ | Annual arithmetic mean | 0.030 | 0.053 | 57 | 100 | If exceeded | If exceeded on more than 1 day per year |
| | | 1 hour | 0.18 | 0.100 | 339 | 188 | If exceeded | – |
| Sulfur dioxide | $SO_2$ | 24 hours | 0.04 | – | 105 | – | If exceeded | If exceeded on more than 1 day per year |
| | | 1 hour | 0.25 | 0.075 | 655 | 196 | If exceeded | – |
| | | 3 hour | - | 0.5[a] | - | 1300[c] | | |
| Hydrogen sulfide | $H_2S$ | 1 hour | 0.03 | – | 42 | – | If equaled or exceeded | – |
| Vinyl chloride | $C_2H_3Cl$ | 24 hours | 0.01 | – | 26 | – | If equaled or exceeded | – |
| Inhalable particulate matter | PM10 | Annual arithmetic mean | – | – | 20 | – | – | – |
| | | 24 hours | – | – | 50 | 150 | If exceeded | If exceeded on more than 1 day per year |
| | PM2.5 | Annual arithmetic mean | – | – | 12 | 12.0 | – | If 3-year average from single or multiple community-oriented monitors is exceeded |
| | | 24 hours | – | – | – | 35 | – | If 3-year average of 98$^{th}$ percentile at each population-oriented monitor in an area is exceeded |
| Sulfate particles | $SO_4$ | 24 hours | – | – | 25 | – | If equaled or exceeded | – |
| Lead particles | Pb | Calendar quarter | – | – | – | 1.5 | – | If exceeded no more than 1 day per year |
| | | 30-day average | – | – | 1.5 | – | If equaled or exceeded | – |
| | | Rolling 3-month average | – | – | – | 0.15 | If equaled or exceeded | Averaged over a rolling 3-month period |

Source: California Air Resources Board 2016.
ppm = parts per million.
μg/m$^3$= micrograms per cubic meter.
[a] Secondary standard.

## State

The following state policies related to air quality may apply to implementation of the proposed project.

In 1988, the state legislature adopted the CCAA, which established a statewide air pollution control program. The CCAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date. Unlike the federal CAA, the CAAQS do not set precise attainment deadlines. Instead, the act establishes increasingly stringent requirements for areas that would require more time to achieve the standards. The CAAQS are generally more stringent than the NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. The CAAQS and NAAQS are listed together in Table 4.3-4.

ARB and local air districts bear responsibility for achieving the CAAQS, which are to be achieved through district-level air quality management plans that would be incorporated into the SIP. In California, EPA has delegated authority to prepare SIPs to ARB, which, in turn, has delegated that authority to individual air districts. ARB traditionally has established state air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving SIPs.

The CCAA substantially adds to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The CCAA also emphasizes the control of “indirect and area-wide sources” of air pollutant emissions. The CCAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish traffic control measures.

### Idling Limit Regulation

On June 15, 2008, ARB adopted a regulation for off-road diesel vehicles. The regulation is designed to reduce TACs from diesel-powered construction and mining vehicles operating in California. Fleet owners are subject to retrofit or accelerated replacement/repower requirements for which ARB must obtain authorization from EPA prior to enforcement.

The regulation also imposes idling limitations on owners, operators, and renters or lessees of off-road diesel vehicles. The idling limits require an operator of applicable off-road vehicles (self-propelled diesel-fueled vehicles of 25 horsepower and greater that were not designed for on-road driving) to limit idling to no more than 5 minutes. These requirements are specified in 13 CCR Section 2449(d)(3).

### State Tailpipe Emission Standards

To reduce emissions from off-road diesel equipment, on-road diesel trucks, and harbor craft, ARB established a series of increasingly strict emission standards for new engines. New construction equipment used for the project, including heavy duty trucks, off-road construction equipment, tugboats, and barges, would be required to comply with the standards.

## Local

At the local level, responsibilities of air quality districts include overseeing stationary-source emissions, approving permits, maintaining emission inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents required by CEQA. The air quality districts are also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws and for ensuring that NAAQS and CAAQS are met.

The following air district rules may apply to implementation of the proposed project. This list may not be all encompassing as additional Butte County Air Quality Management District (BCAQMD) rules may apply to the proposed project as specific components are identified.

**Rule 200 (Nuisance).** This regulation establishes general limitations on air contaminants which cause injury, damage, or nuisance to property or the public.

**Rule 202 (Particulate Matter Concentration).** This regulation restricts emissions of PM in excess of 0.3 grams per cubic foot of gas at standard conditions.

**Rule 205 (Fugitive Dust Emissions).** This regulation limits fugitive emissions of PM10 from construction activities.

**Rule 430 (State New Source Review).** This regulation contains requirements for Best Available Control Technology, emission offsets, and analysis of air quality impacts.

**Rule 440 (Portable Equipment Registration).** This regulation establishes standards and procedures for registration of portable emissions units for operation within BCAQMD.

**Butte County Air Quality Management District**

The BCAQMD has jurisdiction over local air quality in Butte County. Counties in the Sacramento area (i.e., Sacramento, Yolo, Placer, El Dorado, Solano, Sutter, and Butte Counties) have adopted the *Northern Sacramento Valley Planning Area 2015 Triennial Air Quality Attainment Plan* (2015 Plan). This plan outlines strategies to achieve the health-based $O_3$ standard. BCAQMD updated its *CEQA Air Quality Handbook* in 2014, which specifies significance thresholds to determine air quality effects of projects located within district boundaries (Butte County Air Quality Management District 2014). These thresholds are shown in Table 4.3-5.

## Impact Discussion

Potential impacts of the proposed project on air quality are discussed in the context of State CEQA Guidelines Appendix G checklist items.

### Assessment Methods

This section describes the analysis of environmental consequences related to air quality for the project.

Quantitative estimates of criteria pollutant emissions for the project were forecast using construction activity data presented in Section 1, *Project Information*, and using default emission factors from CalEEMod (Version 2016.3.2). Detailed information on the emission calculation methods is provided in Appendix B. The following types of project-specific information were used.

- Duration of construction activity at the project site.
- Type of each construction equipment, number of pieces of each type, horsepower, and the duration of each type of construction activity. Section 1, *Project Information*, provides a list of the equipment to be used at the proposed project site and a forecast of equipment usage. The project site is within the jurisdiction of BCAQMD.
- Equipment usage at the project site was assumed to be a maximum of 9 hours per day. Equipment usage as a percentage of maximum hours of daily usage is presented in Table 1-3 of Section 1.

- Number of haul truck, employee, and vendor vehicle trips.
- Default load factors for each type of construction equipment were set by CalEEMod.
- Default emission factors for fuel consumption and criteria pollutant emission rates for non-road construction equipment, on-road delivery trucks, and on-road commute vehicles were set by CalEEMod.

### Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard.
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

According to the State CEQA Guidelines, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make significance determinations for potential impacts on environmental resources. BCAQMD is responsible for ensuring that state and federal ambient air quality standards are not violated within Butte County. Analysis requirements for construction- and operation-related pollutant emissions are contained in BCAQMD's *CEQA Air Quality Handbook: Guidelines for Assessing Air Quality and Greenhouse Gas Impacts for Projects Subject to CEQA Review* (Butte County Air Quality Management District 2014). The CEQA Air Quality Handbook also contains thresholds of significance for construction-related and operation-related ROG, NOx and PM10; these thresholds are presented in Table 4.3-5. For air quality analysis purposes, the project is considered a long-term construction project; therefore only the construction-related thresholds were considered in this analysis.

**Table 4.3-5. Butte County Air Quality Management District Criteria Pollutant Emissions Thresholds**

| Pollutant | Construction-Re late d | Operation-Re late d |
|---|---|---|
| ROG | 137 pounds/day, not to exceed 4.5 tons/year | 25 pounds/day |
| NOX | 137 pounds/day, not to exceed 4.5 tons/year | 25 pounds/day |
| PM < 10 microns (PM 10 or smaller) | 80 lbs./day | 80 pounds/day |
| Source: Butte County Air Quality Management District 2014.<br>NOX = nitrogen oxides.<br>PM = particulate matter.<br>ROG = reactive organic gases. | | |

### Impact Discussion

***a. Conflict with or obstruct implementation of the applicable air quality plan?***

A project is deemed inconsistent with an air quality plan if it would result in population or employment growth that exceeds the growth estimates in the applicable air quality plan (i.e., generating emissions not accounted for in the applicable air quality plan emissions budget). Therefore, proposed projects need to be evaluated to determine whether they would generate population and employment growth and, if so, whether that growth would exceed the growth rate included in the applicable air quality plan.

The applicable air quality plan is the 2015 Plan (Sacramento Valley Air Quality Engineering and Enforcement Professionals 2015). In adopting this plan, BCAQMD assumes that growth within its jurisdiction will be in accordance with city and county general plans, for which air quality effects associated with build-out have been analyzed. Mining activities would result in temporary emissions of criteria pollutants (see the discussion under question (b) below regarding these emissions) but would not result in any population or employment growth, because it would be a temporary set of activities. The nature of the activities (e.g., aggregate extraction, aggregate processing, offsite hauling) would have no appreciable effect on growth in the county. Therefore, the project would not conflict with, or obstruct, the implementation of the applicable air quality plan, and this impact would be less than significant.

***b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?***

The mining activities would involve the use of a number of off-road and on-road pieces of equipment. The equipment would generate emissions of criteria pollutants that could result in potential exceedances of the thresholds established by BCAQMD. Project activities are expected to take place seasonally for 167 days per year or annually for 250 days per year. Total construction activity would be similar between the seasonal and annual construction scenarios. Consequently, the seasonal scenario would require more intensive construction activity since similar total construction activity would occur over 167 days per year compared to 250 days per year. The current construction schedule indicates that mining activities would begin in 2019 and continue to occur over a period of 20 years. An equal amount of construction activity is assumed for each of the 20 years within the construction period. Maximum daily emissions from mining activities are compared with the BCAQMD thresholds for the worst-case year of mining activities to assess the project's level of significance to air quality. Given the equal amount of construction activity occurring every year, the first year of construction (2019) would be assumed as the worst-case scenario in terms of criteria pollutant emissions. This is because statewide fleet-average construction equipment was assumed for this project and, as newer, cleaner-burning pieces of equipment enter the statewide inventory of off-road and on-road equipment, they replace older, less-efficient pieces of equipment over time.

The maximum daily emissions that are anticipated to result from mining activities in 2019 are shown in Table 4.3-6. The seasonal construction scenario was modeled since more intensive construction activities would be required for this scenario and daily emissions are conservatively assumed to be greater than emissions associated with the annual construction scenario. Emissions for all pollutants during mining activities, as shown in Table 4.3-6, would be below BCAQMD daily and annual construction thresholds. Thus, the project would not violate an air quality standard or contribute substantially to an existing or projected air quality violation, and this impact would be less than significant.

**Table 4.3-6. Project Construction-Related Emissions for Worst-Case Year**

| | Criteria Pollutant Emissions | | | | |
|---|---|---|---|---|---|
| Construction Emissions in Year 2019 | ROG | $NO_X$ | CO | PM10 | PM2.5 |
| Daily (pounds per day) | 3.5 | 43.2 | 17.3 | 2.7 | 1.4 |
| Annual (tons per year) | 0.3 | 3.7 | 1.5 | 0.2 | 0.1 |
| BCAQMD Daily CEQA Threshold (pounds per day) | 137 | 137 | NA | 80 | NA |
| BCAQMD Annual CEQA Threshold (tons per year) | 4.5 | 4.5 | NA | NA | NA |
| Exceeds Threshold? | No | No | NA | No | NA |

Source: CalEEMod emissions modeling
BCAQMD = Butte County Air Quality Management District.
CO = carbon monoxide.
NA = not applicable.
$NO_X$ = nitrogen oxides.
ROG = reactive organic gases.
PM2.5 = particulate matter 2.5 microns or less in diameter.
PM10 = particulate matter 10 microns or less in diameter.

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

BCAQMD has identified project-level thresholds to evaluate criteria pollutant impacts (see Table 4.3-5). In developing these thresholds, BCAQMD considered levels at which project emissions would be cumulatively considerable. Under BCAQMD CEQA Guidelines Projects that do not exceed the significance thresholds shown in Table 4.3-5 may be assumed to have a less than significant impact in regards to a cumulatively considerable net increase of any criteria pollutant for which the region is non-attainment.

The criteria pollutant thresholds presented in Table 4.3-5, therefore, represent the maximum emissions the project may generate before contributing to a cumulative impact on regional air quality. Consequently, exceedances of the project-level thresholds would be cumulatively considerable. As discussed in Impact (b), construction emissions associated with the project would not exceed BCAQMD's quantitative thresholds. Therefore, this impact would be less than significant.

***d. Expose sensitive receptors to substantial pollutant concentrations?***

Construction of the proposed project would result in short-term diesel exhaust emissions from onsite heavy duty equipment. Particulate exhaust emissions from diesel-fueled engines (DPM) were identified as a TAC by ARB in 1998. Construction of the project would result in the generation of DPM emissions from the use of off-road diesel equipment required for site excavation and onsite material hauling, and other construction activities.

The assessment of health risks associated with exposure to diesel exhaust typically is associated with chronic exposure, in which a 30-year exposure period often is assumed. However, while cancer can result from exposure periods of less than 30 years, acute exposure periods (i.e., exposure periods of 1–3 years) to diesel exhaust are not anticipated to result in an increased health risk, as health risks associated with exposure to diesel exhaust typically are seen in exposure periods that are chronic. Construction of the project is expected to take place seasonally for 167 days or annually for 250 days, starting in 2019. Construction activity would occur seasonally or annually over a period of 20 years, which is more than the typical acute exposure period of 1–3 years, and less than the 30-year chronic exposure period. However, there are no sensitive receptors in the vicinity of the areas where construction would occur. As shown in Table 4.3-3, the nearest sensitive receptor is 1,050 feet from the project site, and analyses performed by ARB indicate that providing a separation of at least 1,000 feet from diesel sources would substantially reduce exposure to air contaminants and decrease asthma symptoms in children (California Air Resources Board 2005). Furthermore, as required by ARB regulation, no in-use off-road diesel vehicles may idle for more than 5 consecutive minutes, which would further reduce diesel particulate matter emissions during construction. Finally, Table 4.3-6 indicates PM10 emissions, often used as a surrogate for DPM, would be relatively minor and well below BCAQMD thresholds of significance. No substantial construction activity would occur after the construction phase is completed. Thus, the mining activities would not expose sensitive receptors to substantial pollutant concentrations. This impact would be less than significant.

***e. Create objectionable odors affecting a substantial number of people?***

The proposed project would not result in any major sources of odor, nor would it involve operation of any of the common types of facilities that are known to produce odors (e.g., landfill, wastewater treatment facility). In addition, odors associated with diesel exhaust from the use of onsite construction equipment would be intermittent and temporary and would dissipate rapidly from the source with an increase in distance.

Furthermore, as required by ARB regulation, no in-use off-road diesel vehicles may idle for more than 5 consecutive minutes. This impact would be less than significant. No mitigation is required.

## 4.4 Biological Resources

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? | ☐ | ☒ | ☐ | ☐ | ☐ |
| **b.** Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **c.** Have a substantial adverse effect on federally protected wetlands as defined by Section 404 or the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means)? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **d.** Interfere substantially with the movement of any native resident or migratory fish and wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **e.** Conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy ordinance? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **f.** Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **g.** A reduction in the numbers, a restriction in the range, or an impact to the critical habitat of any unique, rare, threatened, or endangered species of animals? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **h.** A reduction in the diversity or numbers of animals onsite (including mammals, birds, reptiles, amphibians, fish or invertebrates)? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **i.** A deterioration of existing fish or wildlife habitat (for foraging, breeding, roosting, nesting, etc.)? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **j.** Introduction of barriers to movement of any resident or migratory fish or wildlife species? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **k.** Introduction of any factors (light, fencing, noise, human presence and/or domestic animals) which could hinder the normal activities of wildlife? | ☐ | ☐ | ☒ | ☐ | ☐ |

## Environmental Setting

The area proposed for resource extraction is fully disturbed with some ruderal vegetation at the margins. Two plant communities are present adjacent to the site that are suitable for wildlife habitat. Valley oak and riparian woodlands occupy areas to the west of the project site and walnut orchards border the eastern edge of the project site.

The valley oak and riparian woodland habitat along Big Chico Creek provides food, water, migration and dispersal corridors, and escape, nesting, and thermal cover for an abundance of wildlife. Characteristic wildlife includes egrets, herons, ducks, raptor species, swallows, bats, broadfooted mole (*Scapanus latimanus*), western gray squirrel (*Sciurus griseus*), striped skunk (*Mephitis mephitis*), ringtail (*Bassariscus astutus*), and raccoon (*Procyon lotor*). The largest patch of oak and riparian habitat occurs on the M&T Ranch property on the east bank of the Sacramento River, south and east of Big Chico Creek. No ground-disturbing activities would be implemented in the valley oak and riparian woodland habitat or the walnut orchards bordering the project site.

### Field Surveys

#### Botanical Surveys

Botanical surveys of the project site were conducted by MWH in 2014 (MWH 2014) and by ICF botanist Robert Preston, PhD, on August 30, 2016. The surveys were conducted to inventory the plants and plant communities present and to determine whether special-status plants were present.

Vegetation of the project site consists mostly of sparse herbaceous plants growing on the gravel piles. The plant species include a mix of ruderal species that colonize disturbed areas and native species whose seeds may have been present in the gravel when it was deposited on the site. Species present include brome grasses (*Bromus* spp.), doveweed (*Eremocarpus setigerus*), prickly lettuce (*Lactuca serriola*), clammyweed (*Polanisia dodecandra* subsp. *trachysperma*), and compact Oregon goldenaster (*Heterotheca oregona* var. *compacta*).

Vegetation adjacent to the project site includes riparian forest along the western edge and orchard along the eastern edge. The riparian forest has a dense to moderately open canopy dominated by Valley oak (*Quercus lobata*) but supports a diverse mix of native and nonnative trees and understory vines and shrubs, including Northern California black walnut (*Juglans hindsii*), box elder (*Fraxinus oregana*), red willow (*Salix laevigata*), California wild grape (*Vitis californica*), and blue elderberry (*Sambucus nigra* subsp. *caerulea*). Orchards adjacent to the project site were planted in English walnuts (*Juglans regia*) at the time of the surveys.

No special-status plant species were found on or adjacent to the project site.

#### Wildlife Surveys

ICF biologists conducted surveys on May 9 and 10, 2016 at the project site and within a 100-foot buffer to evaluate land cover types for their ability to support special-status wildlife species, specifically valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), giant garter snake (*Thamnophis gigas*), western pond turtle (*Actinemys marmorata*), and nesting birds. Additional information was obtained from an August 2012 survey that identified the biological communities within the project vicinity and included a terrestrial survey to assess habitat suitability for giant garter snake, valley elderberry longhorn beetle (VELB), and nesting raptors (Robertson-Bryan 2012). Prior to field surveys, the most recent California Natural Diversity Database (CNDDB) and U.S. Fish and Wildlife Service (USFWS) species lists and aerial photographs of the project vicinity were reviewed. See Appendix C for CNDDB (2018) and USFWS (2018) for updated species lists.

Protocol-level surveys for VELB and its host plant, elderberry shrubs, were conducted and consisted of walking through the project site and mapping all elderberry shrubs and shrub clusters that were accessible within 100 feet of the project site in accordance with the USFWS Conservation Guidelines for the VELB (U.S. Fish and Wildlife Service 1999a). Information was recorded for each shrub that could be affected by the proposed project, including number of stems between 1 and 3 inches, 3 and 5 inches, and greater than 5 inches in diameter; whether each stem 1 inch or more in diameter is located in a riparian or nonriparian area; and presence of VELB exit holes. The locations of these shrubs were recorded using GPS devices, and a GIS data layer was created showing shrub locations (Figure 3). On July 13, 2017 an ICF biologist met with the landowner and a consultant from EnviroMINE, Inc. and revised the project footprint to ensure complete avoidance of all elderberry shrubs within a 20-foot buffer.

## Results

### Giant Garter Snake Assessment

No giant garter snake habitat was documented within the project site either in 2012 (Robertson-Bryan 2012) or during ICF surveys in 2016. Based on observations of communities and land uses immediately adjacent to the project site, it was determined that a wetland area outside the project site, along the western bank of Big Chico Creek near its confluence with the Sacramento River, contains several essential giant garter snake habitat components including adequate water within Big Chico Creek, emergent vegetation including cattails and bulrushes, and upland habitat with grassy banks. However, this wetland area is bordered by the Sacramento River, orchards, and valley oak and riparian woodlands, which do not represent habitat for giant garter snake. Valley oak and riparian woodlands are not considered suitable habitat because of excessive shade, lack of basking sites, and the absence of prey (U.S. Fish and Wildlife Service 1999b).

### Elderberry Shrub Surveys

ICF biologists identified and mapped 78 elderberry shrubs within 100 feet of the project site. All but one of the shrubs are located on the western edge of the project site. A lone shrub is located on the northeast edge of the project site. Ten of the 78 documented shrubs located in valley oak woodlands along Big Chico Creek showed signs of VELB occupation (exit holes). There were no exit holes in 36 of the shrubs, and ICF was unable to look for exit holes in the remaining shrubs because of dense vegetation. On July 13, 2017 an ICF biologist met with the landowner and a consultant from EnviroMINE, Inc. and revised the project footprint to completely avoid the 78 elderberry shrubs and maintain a minimum 20-foot buffer from each of the 78 shrubs' driplines. Twenty feet was chosen as the criteria for determining whether a shrub is in danger of disturbance based on USFWS programmatic guidelines (U.S. Fish and Wildlife Service 1999b). Following these guidelines, it is generally accepted (though not dictated) that direct impacts on VELB can be avoided if a 20-foot buffer can be established around the dripline of elderberry shrubs containing stems measuring 1.0 inch or greater in diameter at ground level.

### Nesting Bird Surveys

No nesting birds were observed in the project site. Biologists identified 37 different bird species in the project vicinity. Two osprey were observed, one carrying a stick, but no nest was located. Additional raptor species observed foraging or soaring within the project area included red-tailed hawk (*Buteo jamaicensis*) and turkey vulture (*Cathartes aura*). Swainson's hawk (*Buteo swainsoni*) and Cooper's hawk (*Accipiter cooperii*) were observed flying west of the project site. However, no nests of any of these species were identified within 100 feet of the project site.

## Regulatory Setting

The following section summarizes applicable regulatory information that applies to biological resources in the project vicinity.

Biological resources analysis is guided by policies and standards set by local, state, and federal jurisdictions. Because the project site is located in Butte County, the project would adhere to the adopted county biological resources policies in *Butte County General Plan 2030*.

Rare, threatened or endangered species as listed by CDFW, (California Code of Regulations, Title 14, sections 670.2 - 670.5) or USFWS, (50 CFR 17.11 and 17.12) or species of special concern as listed by the CDFW would be protected throughout mining and reclamation. The Reclamation Plan is designed to establish wildlife habitat that is at least as good as that which existed before mining.

For this IS/MND, information regarding the suite of special-status species that could be directly or indirectly affected by the proposed project was obtained from various sources. The key sources of data and information used in the preparation of this section are listed below.

- A CNDDB records search for the potentially affected area, which includes portions of the following U.S. Geological Survey (USGS) 7.5-minute topographical quadrangles that overlap the affected area: Ord Ferry, Llano Seco, and Foster Island was conducted on September 28, 2018 (Appendix C).
- A query of the USFWS Sacramento Fish and Wildlife Office list generator was conducted on September 28, 2018 to obtain an official list of federally endangered, threatened, and proposed species that may be affected by projects in the aforementioned nine USGS quadrangles (Appendix C).
- A review of the records in the 2012 California Native Plant Society Inventory of Rare and Endangered Plants was conducted for the same USGS quadrangles on October 15, 2018 (Appendix C).
- Results from field surveys previously conducted in the project vicinity (Robertson-Bryan 2012, MWH 2014).
- Results of May 9 and 10, 2016 and July 13, 2017 field surveys including focused VELB habitat surveys, nesting bird surveys, and general habitat mapping.
- Results of August 30, 2016 special-status plant survey.
- The *Butte County General Plan 2030* (Butte County 2010). Butte County goals and policies applicable to the Proposed Project include the following:

  Goal COS-7. Conserve and enhance habitat for protected species and sensitive biological communities.

  COS-P7.7. Construction barrier fencing shall be installed around sensitive resources on or adjacent to construction sites. Fencing shall be installed prior to construction activities and maintained throughout the construction period.

  COS-P7.8. Where sensitive on-site biological resources have been identified, construction employees operating equipment or engaged in any development-associated activities involving vegetation removal or ground disturbing activities in sensitive resource areas shall be trained by a qualified biologist and/or botanist who will provide information on the on-site biological resources (sensitive natural communities, special-status plant and wildlife habitats, nests of special-status birds, etc.), avoidance of invasive plant introduction and spread, and the penalties for not complying with biological mitigation requirements and other State and Federal regulations.

COS-P7.9. A biologist shall be retained to conduct construction monitoring in and adjacent to all habitats for protected species when construction is taking place near such habitat areas.

Goal COS-8. Maintain and promote native vegetation.

COS-P8.1. Native plant species shall be protected and planting and regeneration of native plant species shall be encouraged, wherever possible.

COS-P8.4. Introduction or spread of invasive plant species during construction …shall be avoided by minimizing surface disturbance; seeding and mulching disturbed areas with certified weed-free native mixes; and using native, noninvasive species in erosion control plantings.

Goal COS-9. Protect identified special-status plant and animal species.

- The *Butte Regional Conservation Plan* (BRCP). The Draft BRCP is currently being prepared and coordinated by the Butte County Association of Governments. The BRCP will satisfy both federal and state requirements for a Habitat Conservation Plan (HCP) and a state Natural Community Conservation Plan (NCCP), respectively. The BRCP's planning area covers approximately the western half of Butte County (Butte County Association of Governments 2015).

## Impact Discussion

The analysis of impacts on biological resources is based on a review of the resources noted above and an evaluation of the project's potential to affect wildlife resources on or within 100 feet of the project site. Potential impacts of the project related to biological resources are discussed in the context of State CEQA Guidelines Appendix G checklist items. For purposes of this analysis, the project would be considered to have a significant impact under CEQA on biological resources if it would contribute to any one of the following conditions.

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

No special-status plants were found on the project site, and no natural habitat for special-status plants is present. Because the site is heavily disturbed with minimal ruderal vegetation, there would be little if any effect from the proposed activities on wildlife. However, the project could potentially affect VELB, western pond turtle, and migratory birds and raptors. These potential impacts are discussed below. The project site does not support suitable habitat for giant garter snake.

### Disturbance or Loss of VELB and Its Habitat (Elderberry Shrub)

Elderberry shrubs are the host plant for VELB, a federally threatened species. During elderberry shrub surveys, 78 elderberry shrubs were documented within 100 feet of the project site. All but one of them are on the western edge of the project site. A lone elderberry shrub (eb75) is located just to the west of River Road on the northeastern corner of the project site.

No direct impacts on the elderberry shrubs or VELB would result during project implementation; ground-disturbing activities would be avoided within 20 feet of all elderberry shrub driplines (see Figure 3); however, ground-disturbing activities within 100 feet of elderberry shrubs could cause an indirect effect through accumulation of dust on the shrubs, which could alter VELB habitat. Up to 78 elderberry shrubs or groupings of shrubs could be affected by this indirect effect.

Substantial accumulation of dust on the shrubs would be considered a significant impact. The *M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project Final Environmental Assessment/Initial Study* (Final Short-Term EA/IS) served as the biological assessment for the project that will place additional dredge spoils on the project site. The measures committed to in the Final Short-Term EA/IS are summarized below. ICF has reviewed these measures and believes that indirect impacts on the 78 elderberry shrubs within 100 feet of the project footprint would likely be avoided if the measures are implemented for the proposed project. This impact would be less than significant with implementation of Mitigation Measures BIO-1, BIO-2, and BIO-3.

**Mitigation Measure BIO-1: Avoid Impacts on VELB**

- Before any ground-disturbing activities occur, the project applicant will ensure that chain link fencing is installed at least 20 feet from the driplines of the elderberry shrubs. This fencing is intended to prevent encroachment by vehicles and personnel. The exact location of the fencing will be determined by a qualified biologist, with the goal of protecting sensitive biological resources (habitat for VELB). The fencing will be installed in a way that prevents equipment from enlarging the work area beyond what is necessary to complete the work. The fencing will be checked and maintained weekly while there are ongoing construction and operations activities. This buffer zone will be marked by signs erected every 50 feet stating:

  > "This is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment."

  These signs will be clearly readable from a distance of 20 feet, and must be maintained for the duration of the project. No construction or operations activities, including grading, will be allowed until this condition is satisfied. The fencing and a note reflecting this condition will be shown on the project design plans.

- No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant will be used in the buffer areas, or within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level.
- In order to avoid attracting Argentine ants, at no time will water be sprayed within the dripline of elderberry shrubs.

**Mitigation Measure BIO-2: Prepare and Implement an Environmental Awareness Training Program for Project Personnel**

A qualified biologist will implement an environmental awareness training program prior to the start of any ground-disturbing activities for all project personnel. Every construction and operations worker must receive this training which will include information on any sensitive terrestrial biological resources associated with the project and disturbance of sensitive habitat or special-status species is a violation of the Federal ESA and Section 404 of the CWA. The training also will instruct workers about what to do and who to contact if a special-status species is encountered during construction activities.

**Mitigation Measure BIO-3: Prepare and Implement a Dust Control Plan**

The project applicant will ensure that dust control measures are implemented for all ground-disturbing activities in the project site. These measures will include:

- Haul vehicles transporting rock into or out of the area will be covered.
- A water truck will be present on site at all times to water non-paved roadways in order to minimize dust. Active construction areas will be watered at least twice daily. The frequency of watering should be based on the type of operation, soil, and wind exposure.
- Water will be applied as needed prior to any land clearing or earth movement to minimize dust. All visibly dry disturbed soil surface areas of operation shall be watered to minimize dust emission. Water shall be applied to disturbed areas a minimum of two times a day or more, as necessary.
- Vehicles entering or exiting a construction area shall travel at a speed that minimizes dust emissions.
- Limit the speed of on-site vehicles to 15 mph on unpaved roads.
- Suspend grading, earth moving, or excavation activities when winds exceed 20 mph.
- Workers shall park in designated parking area(s) to help reduce dust emissions.

### Disturbance or Loss of Western Pond Turtles

Big Chico Creek provides suitable aquatic habitat for western pond turtles. The three sediment ponds associated with extraction operations could become an attractive nuisance for western pond turtles if they are present in Big Chico Creek. The western pond turtle is a California species of special concern primarily found in natural aquatic habitats. Upland habitats are also important to western pond turtles for nesting, overwintering, and overland dispersal (Thomson et. al. 2016:300). Western pond turtles have been reported traveling up to 1.86 miles some distance in upland habitat and may use the aquatic habitat provided by the sediment ponds. The turtles would probably not use the ponds while sediments are being processed but once the ponds are no longer needed at that location, turtles could move in and be present on the project site and could be impacted during operations.

Disturbance to or loss of the western pond turtle, a special-status species, would be a significant impact. Implementation of Mitigation Measure BIO-4 would minimize the potential effects on western pond turtle, thereby reducing the direct effect to a less-than-significant level.

**Mitigation Measure BIO-4: Fill Sediment Ponds at the End of Each Processing Cycle**

To ensure that the sediment ponds do not provide an attractive nuisance for western pond turtles and permanent water onsite, the project applicant will immediately fill in the ponds once processing is complete at a location and before they move to a new extraction location. When ponds are filled after completion of extraction activities at one location, the filling should occur during the summer months when pond turtles are most active and can move out of the area and back to the creek.

### Loss or Disturbance of Tree-, Shrub-, and Ground-Nesting Special-Status and Non-Special-Status Migratory Birds and Raptors

Some of the special-status birds and raptors that could be present include yellow-billed cuckoo (*Coccyzus americanus*), Swainson’s hawk (observed flying overhead during surveys in 2016), loggerhead shrike (*Lanius ludovicianus*), and white-tailed kite (*Elanus leucurus*) (Appendix C). Trees and shrubs in the project vicinity also provide nesting habitat for several common migratory birds and raptors, including western bluebird, western kingbird, Anna's hummingbird, lesser goldfinch, American goldfinch, red-shouldered hawk, and red-tailed hawk. All migratory birds and raptors are protected under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code Sections 3503 and 3503.5. The majority of the project site is disturbed with little vegetation and is not suitable for most nesting birds. One exception is the killdeer which nests on barren ground and favors gravel.

Project start-up and operation activities, including the installation of gravel processing equipment and construction of sediment ponds over the lifetime of the project, could result in the disturbance of both special-status and migratory nesting birds described above that could be present in the project vicinity. If project start-up activities and operations occur during the breeding season (generally between February 1 and August 31), project activities (e.g., tree and shrub removal, excavation, and grading) at the project site could disturb or remove occupied nests of the species noted above. These disturbances could cause nest abandonment and subsequent loss of eggs or developing young at active nests located in the project vicinity.

Loss of vegetation would be minimal and limited to pruning at one location at the site access location to ensure oncoming traffic from the west has a clear view of the intersection (Figure 3). Construction and mining operations would be limited to the unvegetated project site and will not require the removal of any trees or shrubs. The limited amount of habitat loss or disturbance to potential nesting habitat and the ongoing levels of disturbance from agricultural activities, recreational use of the river and shore, and vehicle traffic in the area further reduce the potential for effects from project start-up activities and operations on nesting birds. Ongoing operations would not be considered a significant impact because they would mimic existing disturbance at the project site. However, project start-up activities, including setting up the gravel extraction equipment and constructing and subsequently filling the sediment ponds, could have a potentially significant impact on nesting birds.

Implementation of Mitigation Measure BIO-5 would avoid and minimize effects on nesting birds and raptors, thereby reducing them to a less-than-significant level and avoiding violation of the MBTA and CFGC.

**Mitigation Measure BIO-5: Avoid Disturbance of Tree-, Shrub-, and Ground-Nesting Special-Status and Non-Special-Status Migratory Birds and Raptors and Conduct Preconstruction Nesting Bird Surveys**

To avoid and minimize effects on nesting special-status and non–special-status migratory birds and raptors, the project applicant will implement the appropriate surveys and restrictions.

- To avoid removing or disturbing any active killdeer, yellow-billed cuckoo, Swainson's hawk, other special-status birds' nests, or non–special-status migratory bird nests, tree and shrub removal will be conducted during the nonbreeding season (generally between September 1 and January 31) or after a qualified biologist determines that fledglings have left an active nest. If this is not feasible, it is likely that there will be nesting birds in the project vicinity, which will require a buffer and avoidance during construction until the birds have fledged.
- If project start-up activities including setting up the extraction equipment and constructing and filling in sediment ponds will occur during the breeding season (February 1 through August 31), a qualified wildlife biologist (with knowledge of the species to be surveyed) will be retained to conduct surveys for nesting birds for all trees and shrubs and ground-nesting habitat located within 500 feet (0.50 mile for Swainson's hawk) of construction activities, including grading, vegetation removal, and excavation in borrow sites.

- The following focused nesting surveys will take place prior to project start-up activities and in the appropriate habitat:
  - The project applicant will rely on the results of annual yellow-billed cuckoo surveys conducted by CDFW and USFWS. Depending on the timing of when future gravel operations may become necessary, CDFW and USFWS will be contacted to request updated species presence/absence information from the annual yellow-billed cuckoo survey effort along the Sacramento and Feather rivers. If nests or western yellow-billed cuckoos are observed by the monitoring biologist over the course of activities, then CDFW and USFWS will be contacted to determine the potential for adverse effects, and whether additional protective measures are necessary.
  - Swainson's hawk surveys will rely on the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000), with appropriate modifications based on yearly differences in hawks nesting timing and site conditions.

    For Swainson's hawk, surveys will be conducted within the project site and within 0.50 mile of the project site (where access from public roads is available and where there are no significant barriers, such as the Sacramento River). The guidelines recommend that surveys be completed for at least the two survey periods immediately prior to a project's initiation. The survey dates may be adjusted depending on when birds return to the area. The survey periods include Period I: January–March 20, consisting of one survey to identify potential nest sites; Period II: March 20–April 5, consisting of three surveys to identify nesting territories; Period III: April 5–April 20, consisting of three surveys when active nest locations are most easily identified; Period IV: April 21–June 10, only surveys of known nest sites are recommended during this period when birds are laying and incubating eggs; and Period V: Jun 10–July 30, consisting of surveys to observe post-fledging success at the nests. At least one survey will be conducted no more than 48 hours prior to the start of construction to confirm the absence of nesting.
  - Other bird nest surveys (within 500 feet of construction activities) can be conducted concurrent with Swainson's hawk surveys with at least one survey to be conducted no more than 48 hours from the initiation of project activities to confirm the absence of nesting.
- If the biologist determines that the area surveyed does not contain any active nests, ground disturbing activities, including removal or pruning of trees and shrubs, can commence without any further mitigation.
- If an active nest is located in the proposed disturbance area, the wildlife biologist will consult with CDFW to establish a suitable buffer zone. If it is determined the nest is of a listed species, CDFW will be contacted for further avoidance measures. At a minimum, all work within 0.50 mile of the nest will be halted until consultation with the CDFW and/or the USFWS is initiated. If a non-listed raptor nest is located within 250 feet or a migratory bird nest is located within 100 feet of disturbance, and the disturbance must take place during the breeding season, a buffer zone will be established by the biologist and confirmed by the appropriate resource agency (CDFW and/or USFWS). The buffer area requirements are 250 feet for any active raptor nest and 100 feet for any migratory bird nest or as defined by CDFW and/or USFWS. A qualified wildlife biologist will monitor the nest to determine when the young have fledged and submit bi-weekly reports throughout the nesting season. The biological monitor will have the authority to cease construction if there is any sign of distress to any raptor or migratory bird. Reference to this requirement and the MBTA will be included in the construction specifications.

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

Riparian forest is present along the western edge of the project site but would not be affected by project activities. There would be no impact.

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

No wetlands are present on the project site, and no wetlands would be affected by the proposed project. There would be no impact.

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

The project would not interfere with the movement of native resident or migratory fish and wildlife species because the project site is not in an established wildlife corridor. The project site is heavily disturbed and project start-up and operations activities would be implemented outside of adjacent aquatic and riparian habitats used by both resident and migratory wildlife species. There would be no impact.

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

The project would not conflict with any local policies or ordinances protecting biological resources and is consistent with goals and policies identified in the *Butte County General Plan 2030* (Butte County 2010), identified in the Regulatory Setting section above. There would be no impact.

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

There are no adopted conservation plans that cover the project site. The BRCP does include the project site but is still in draft form. This IS/MND is consistent with avoidance and minimization measures identified in the public review draft of the BRCP, including measures to avoid and minimize effects in riparian habitats, on nesting birds, to avoid siting work areas in sensitive species habitats (e.g., VELB), control dust, conduct worker training, and implement spill prevention and control measures and a stormwater pollution prevention plan.

g. ***A reduction in the numbers, a restriction in the range, or an impact to the critical habitat of any unique, rare, threatened, or endangered species of animals?***

The project site is not located within critical habitat for any unique, rare, threatened, or endangered species of animals. There would be no impact.

h. ***A reduction in the diversity or numbers of animals onsite (including mammals, birds, reptiles, amphibians, fish or invertebrates)?***

Because the project site is heavily disturbed with only limited ruderal vegetation, it does not support a significant diversity or number of wildlife species. Therefore, project start-up activities and operations would not result in the reduction in the diversity or numbers of animals onsite. There would be no impact.

i. ***A deterioration of existing fish or wildlife habitat (for foraging, breeding, roosting, nesting, etc.)?***

Because the project site is heavily disturbed with only limited ruderal vegetation, project start-up activities and operations would not result in the deterioration of existing wildlife habitat. There is no aquatic habitat on the project site. There would be no impact.

***j. Introduction of barriers to movement of any resident or migratory fish or wildlife species?***

Project start-up activities and operations would not introduce any barriers to movement to resident fish or wildlife species. There is no aquatic habitat and resident or migratory wildlife species would still be able to move through the project site. There would be no impact.

***k. Introduction of any factors (light, fencing, noise, human presence and/or domestic animals) which could hinder the normal activities of wildlife?***

Because the site is heavily disturbed with no vegetation, there would be little if any effect from the project start-up activities and operations on wildlife. Common wildlife species that could be present may be displaced during project start-up activities and operations. However, because the site is considered marginal habitat and these are common species that are also present in the project vicinity, the impact would be less than significant.

## 4.5 Cultural Resources

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Cause a substantial adverse change in the significance of a historical resource as defined in State CEQA Guidelines Section 15064.5? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **b.** Cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA Guidelines Section 15064.5? | ☐ | ☒ | ☐ | ☐ | ☐ |
| **c.** Disturb any human remains, including those interred outside of formal cemeteries? | ☐ | ☒ | ☐ | ☐ | ☐ |
| **Tribal Cultural Resources: Would the proposal cause a substantial adverse change in the significance of a tribal cultural resource, defined by Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:** | | | | | |
| **d**. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or | ☐ | ☐ | ☐ | ☒ | ☐ |
| **e.** A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe. | ☐ | ☐ | ☐ | ☒ | ☐ |

# Setting

### Archaeological Context

#### Terminal Pleistocene and Early Holocene: 13,500–7000 BP

At the end of the Pleistocene (roughly the beginning of the Paleoindian Period), circa 13,500 to 10,500 BP, parts of the Sierra Nevada adjacent to the Central Valley were covered with large glaciers (West et al. 2007:27), and the valley provided a major transportation route for animals and people. This transportation corridor, perhaps rivaled only by maritime coastal travel (Erlandson et al. 2007), was undoubtedly used heavily by early Californians. Evidence of human occupation during this period, however, is scarce, the hypothesized result of being buried by deep alluvial sediments that accumulated rapidly during the late Holocene (Westwood 2005:17).

Although rare, archaeological remains of this early period have been reported in and around the Central Valley (Ann S. Peak & Associates 1981; Johnson 1967; Treganza and Heizer 1953). The economy of the Central Valley residents during the late Pleistocene is thought to have been based on the hunting of large Pleistocene mammals. Although no direct evidence of this exists in the Central Valley, the similarity of the artifact assemblages with those of other locations in western North America lends some support the notion of a large-game economic focus.

### Middle to Late Holocene: 7000–1200 BP

Much of the Pleistocene megafauna became extinct at the Pleistocene/Holocene transition. These extinctions were caused by warming temperatures, rising sea levels, and changing precipitation patterns. To survive without large game, people had to change their food procurement strategies to make use of a more diverse range of smaller plants and animals.

Using a wider range of smaller resources meant people had to have access to larger areas of land to hunt and collect the food and other resources they needed. Small groups of people probably moved through the Central Valley, foothills, and Sierra Nevada to take advantage of seasonally available resources and resources limited to particular ecozones. This mobile foraging strategy was essential to their survival.

During the Lower Archaic Period, beginning approximately 6000 BP, a shift to a more specialized subsistence strategy began to take place. The more specialized strategy focused on ways of increasing the amount of food that could be produced from smaller portions of land. This change can be at least partially explained by the increasing numbers of people living in the Central Valley. An increased population is indicated by a much more abundant archaeological record and by dietary stress, as indicated by dental pathologies (Morrato 1984:203–204).

### Late Horizon: 1200 BP to Historic Period

The trends toward specialization, exchange, and spatial circumscription that characterized prior periods continued in the Late Horizon. Population continued to increase, and group territories continued to become smaller and more defined (Chartkoff and Chartkoff 1984). Patterns in the activities, social relationships, belief systems, and material culture continued to develop during this period and took forms similar to those described by the first Europeans that entered the area.

The predominant generalized subsistence pattern during this period is called the Augustine Pattern (1200 BP) and shows a high degree of technological specialization (Fredrickson 1973). Development of the Augustine Pattern was apparently stimulated by the southward expansion of Wintuan populations into the Sacramento Valley (Moratto 1984). The Augustine Pattern reflects a change in subsistence and land-use patterns to those of the ethnographically known people of the historic era. This pattern exhibits a great elaboration of ceremonial and social organization, including the development of social stratification. Exchange became well developed, and an even more intensive emphasis was placed on the use of the acorn, as evidenced by the presence of shaped mortars and pestles and numerous hopper mortars in the archaeological record.

## Ethnographic Context

### Konkow Maidu

Ethnographically, the Konkow Maidu occupied the area northwest of their Nisenan neighbors, in the foothills east of Chico and Oroville, as well as a portion of the Sacramento Valley (Riddell 1978). Konkow is one of three languages composing the Maiduan language family of the Penutian linguistic stock. Several dialects of Konkow were spoken from the lower extent of the Feather River Canyon to the surrounding hills and in the adjacent parts of the Sacramento Valley (Shipley 1978).

The project site is located within .25 miles of, but outside of the known boundaries of, an Ethnographic Konkow Maidu Village site, Pah-kem, which is located on the west side of the confluence of Mud Creek and Big Chico Creek.

### Historic Context

Early European and Euro-American exploration of the project area and of the wider region comprising present-day Butte County began with Spaniard Gabriel Moraga's 1808 expedition into the northern Sacramento River Valley. Moraga encountered the Feather River during this expedition and mistakenly took it to be, in the words of historian Douglas E. Kyle, "the principal stream of the great northern valley" (Kyle 2002:522).

The first Euroamerican settlement in Butte County occurred in July 1844, when Edward Farwell and Thomas Fallon settled briefly on the 22,193-acre Farwell Grant, located along the Sacramento River south of Big Chico Creek (Beck and Hasse 1974, Talbitzer 1987). The first permanent settler was John Potter, who obtained 220 acres of the Farwell Grant in 1845. Potter built an adobe home on Chico Creek in what would become downtown Chico (Talbitzer 1987). The project site is located entirely within the original boundaries of the Farwell Grant. After striking gold at Bidwell's Bar along the Feather River in 1848, John Bidwell purchased the Chico Rancho from Grantees William Dickey and Edward Farwell in 1849. Bidwell would later establish the town of Chico there (Kyle 2002:37-38).

With the discovery of gold the nature of life in Butte County changed. Gold Rush immigrants formed new smaller, informal settlements. By one count, 214 mining camps were established in southeastern Butte County and many of these were likely situated along the Feather River (Talbitzer 1987:29). However, as many would-be miners failed to find wealth in the goldfields, they turned to farming, building on the fledgling agricultural industry established by the region's earliest Euro-American settlers.

Large-scale irrigation spread in Butte County in the early twentieth century. In 1905, the Butte County Canal (later renamed the Sutter-Butte Canal) opened, supplying Feather River water to parts of the county along the west bank of the river (McGie 1980:12). In addition to supporting already-thriving horticultural and viticultural sectors, the canal systems allowed the introduction of rice growing. The earliest such endeavors in the area were on experimental farms supported by the U.S. Department of Agriculture in 1908 (Mansfield 1919:356). By 1911, approximately 1,000 acres in Butte County were planted with rice; 7 years later, the acreage devoted to the grain had increased to 30,000 acres.

Throughout the twentieth century, Butte County boasted a thriving and diverse agricultural sector that included a variety of grain, fruit and citrus orchards, and truck crops. Through this period, and to the present, rice has been the major regional crop (Butte County 1952; Butte County Agricultural Commissioner 1973; Butte County Historical Society 2010).

## Regulatory Setting

### Assembly Bill 52

Effective July 1, 2015, AB 52 amended CEQA to require that a lead agency provide notice to those California Native American tribes that request notice of projects proposed by the lead agency and that the lead agency consult with any tribe that responds to the notice within 30 days of receipt with a request for consultation.

Topics that may be addressed during consultation include tribal cultural resources, the potential significance of project impacts, type of environmental document that should be prepared, and possible mitigation measures and project alternatives.

Public Resources Code Section 21073 defines California Native American tribes as "a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of the Statutes of 2004." This includes both federally and non-federally recognized tribes.

Section 21074(a) of the Public Resource Code defines tribal cultural resources for the purpose of CEQA as either of the following:

1. Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
    A. Included or determined to be eligible for inclusion in the California Register of Historical Resources.
    B. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Because criteria A and B also meet the definition of a historical resource under CEQA, a tribal cultural resource may also require additional consideration as a historical resource. Tribal cultural resources may or may not exhibit archaeological, cultural, or physical indicators.

Recognizing that California tribes are experts in their tribal cultural resources and heritage, AB 52 requires that CEQA lead agencies provide tribes that requested notification an opportunity to consult at the commencement of the CEQA process to identify tribal cultural resources. Furthermore, because a significant effect on a tribal cultural resource is considered a significant impact on the environment under CEQA, consultation is used to develop appropriate avoidance, impact minimization, and mitigation measures.

## Methods

On August 23, 2018, ICF archaeologist Erik Allen conducted a records search at the Northeast California Information Center of the California Historical Information System at California State University, Chico in Chico, California. Results of the records search indicated that there has been little previous survey (less than 10% of the total area) conducted covering the project site. The records search identified no previously recorded resources within the project site.

On August 23, 2018, ICF archaeologist Erik Allen conducted a field survey of the project site. Visibility was generally poor, with the majority of the project site covered entirely in gravel. Mr. Allen paid special attention to areas denuded of vegetation, such as footpaths and areas adjacent to the levee road. No archaeological resources were noted within the project site during survey.

A levee road is located along the eastern side of the project site and would be used for project access. No historical resources were noted within the project site during survey.

On August 16, 2016, Butte County identified that either no tribes requested to consult under AB 52 on projects within the project vicinity or that the project is outside the area of interest for the tribes requesting consultation with the County (Hickel pers. comm).

Additional research was conducted using the following sources for the discussion of cultural resources and tribal cultural resources: Moratto 1984, Shipley 1978, Heizer and Whipple 1971.

## Impact Discussion

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

The proposed project would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 because there are no historical resources present within the project site. There would be no impact.

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

The possibility exists that buried archaeological resources that may meet the definition of historical resource or unique archaeological resource are present in the project site. If any buried resources are encountered and damaged during project implementation, the destruction of the archaeological resources would be a potentially significant impact. Implementation of Mitigation Measure CUL-1 would reduce this impact to a less-than-significant level.

**Mitigation Measure CUL-1: Implement Measures to Protect Previously Unidentified Cultural Resources**

Work will stop if potential cultural resources are encountered. It is possible that previous activities have obscured surface evidence of cultural resources. If signs of an archeological site, such as any unusual amounts of stone, bone, or shell, are uncovered during grading or other project implementation activities, work will be halted within 100 feet of the find and the Butte County Department of Development Services will be notified. A qualified archeologist will be consulted for an onsite evaluation. If the site is or appears to be eligible for listing the California Register of Historical Resources (CRHR) or National Register of Historic Places (NRHP), additional mitigation, such as further testing for evaluation or data recovery, may be necessary.

In the event resources are discovered, the project applicant in conjunction with the Butte County Department of Development Services will retain a qualified archaeologist to assess the find and to determine whether the resource requires further study. Any previously undiscovered resources found during project implementation will be recorded on appropriate California Department of Parks and Recreation 523 forms and evaluated for significance under all applicable regulatory criteria.

All work will stop within 100 feet of the find. If the find is determined to be eligible for listing on the CRHR or NRHP, the project applicant in conjunction with the Butte County Department of Development Services will make available contingency funding and a time allotment sufficient to allow recovery of an archaeological sample or to implement an avoidance measure.

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

There is a possibility that ground-disturbing activities during project implementation may uncover previously unknown buried human remains, which would be a potentially significant impact. Implementation of Mitigation Measure CUL-2 in combination with Mitigation Measure CUL -1 will reduce this impact to a less than significant level.

**Mitigation Measure CUL-2: Implement Measures if Project Activities Inadvertently Discover or Disturb Human Remains**

If human remains are discovered during any phase of the project, including disarticulated or cremated remains, the construction contractor will immediately cease all ground-disturbing activities within 100 feet of the remains and notify Butte County Department of Development Services. The Butte County Coroner will be notified immediately of the presence of human remains within the project area. In accordance with California Health and Safety Code Section 7050.5, no further disturbance will occur until the following steps have been completed.

In accordance with California Health and Safety Code Section 7050.5, no further disturbance will occur until the following steps have been completed.

i. The Butte County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98.

ii. If the remains are determined by the County Coroner to be Native American, the Coroner will notify the Native American Heritage Commission (NAHC) within 24 hours. NAHC will assign the Most Likely Descendant (MLD) for the remains at the site. The MLD will have 48 hours from being granted access to the site to provide recommendations for treatment of the remains.

A professional archaeologist with Native American burial experience will conduct a field investigation of the specific site and consult with the MLD, if any, identified by NAHC. As necessary and appropriate, a professional archaeologist may provide technical assistance to the MLD, including the excavation and removal of the human remains.

***d. Cause a substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?***

Results of the records search and survey for the project concluded no historical resources are located within the project area. Consequently, the proposed project would result in no impact on historical resources.

***e. Cause a substantial adverse change in the significance of a tribal cultural resource that is a resource determined by the lead agency to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1?***

No tribes have requested to consult under AB 52 for this project, and no known resources are located within the project area. There would be no impact.

## 4.6 Geologic Processes

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | | | |
| **1.** Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | ☐ | ☐ | ☐ | ☒ | ☐ |
| **2.** Strong seismic ground shaking? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **3.** Seismic-related ground failure, including liquefaction? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **4.** Landslides? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **b.** Result in substantial soil erosion or the loss of topsoil? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **c.** Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **d.** Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **e.** Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal system where sewers are not available for the disposal or waste water? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **f.** Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | ☐ | ☐ | ☐ | ☒ | ☐ |

## Introduction

This section analyzes the project's potential impacts related to geology, soils, and seismicity. It describes the existing conditions in the project area, summarizes local regulatory frameworks, and analyzes the potential for the project to impact these resources.

## Environmental Setting

### Geology

The project area is located in the northeastern portion of the Sacramento Valley, which forms the northern portion of California's Great Valley geomorphic province (Norris and Webb 1990:412; California Geological Survey 2002). Big Chico Creek and the Sacramento River are immediately due west of the project area each generally flowing north to south. Topography within the project area consists of gently rolling terrain extending outwards to flat floodplains. Elevations within the project area range from approximately 120 feet above mean sea level (AMSL) to 135 feet AMSL. A levee of approximately eight feet in height separates the Sacramento River and Big Chico Creek floodplains from the orchards to the east.

Geologic mapping by Saucedo and Wagner (1992) shows that the project area is underlain entirely by natural levee and channel deposits (i.e., Holocene alluvium). According to the Reclamation Plan prepared for the project (Appendix A), the alluvium deposits consist of mainly poorly sorted sands, gravels, and boulders of streams and alluvial fans.

## Soils

Soil map units identified in the project area include the Gianella fine sandy loam, 0 to 1 percent slopes, occasionally flooded, and the Gianella fine sandy loam, 0 to 1 percent slopes, frequently flooded (Burkett and Conlin 2006). These soils are located on slopes that range from 0 to 1 percent, and are generally located on river bars and floodplains. The soil is described as stratified, coarse loamy alluvium derived from a (Sierra Nevada) parent material of igneous, metamorphic, and sedimentary rocks. The soils are moderately well-drained, with a fine sandy loam texture that has anywhere from 0 to 20 percent of the surface covered by medium to well-rounded gravel. The erosion hazard is generally low and the wind generally low. The soils are not expansive.

Overlying the native soil is a stockpile of aggregate dredged from the Sacramento River which currently consists of approximately 300,000 tons of alluvial aggregates located on approximately 8.3 acres of the 12.4-acre project site. The aggregate pile is river alluvium, composed of the aforementioned materials.

## Seismicity

The project area is located in a region of California characterized by relatively low seismic activity (California Geological Survey 2008a).

### Primary Seismic Hazards

The State of California considers two aspects of earthquake events as primary seismic hazards: surface fault rupture (disruption at the ground surface as a result of fault activity) and seismic ground shaking.

#### Surface Fault Rupture

The project area is not located in an Alquist-Priolo Earthquake Fault Zone (California Geological Survey 2015), and no active faults have been identified (California Geological Survey 2010); therefore, the risk of surface fault rupture in the project area is considered low. The nearest fault is the Chico Monocline Fault (which is mapped as a Quaternary fault with an undifferentiated age), located approximately 6 miles east of Chico (California Geological Survey 2010).

#### Ground Shaking

The probabilistic peak horizontal ground acceleration values for the project area are 0.19g (where g equals the acceleration of gravity) based on a probabilistic seismic hazard map that depicts the peak horizontal ground acceleration values exceeded at a 10% probability in 50 years (California Geological Survey 2008b). As a point of comparison, probabilistic peak horizontal ground acceleration values for the San Francisco Bay Area range from 0.4g to more than 0.8g. Therefore, the ground-shaking hazard in the project area is low.

### Secondary Seismic Hazards

Secondary seismic hazards refer to seismically induced landsliding, liquefaction, and related types of ground failure. As discussed below in the Regulatory Setting section, the State of California maps areas that are subject to secondary seismic hazards pursuant to the Seismic Hazards Mapping Act of 1990. The State of California has not published seismic hazard mapping in Butte County under the Seismic Hazards Mapping Program (California Geological Survey 2015). These hazards are addressed briefly below based on available information.

#### Landslide and Other Slope Stability Hazards

The project area is located on a floodplain (river left) of the Sacramento River, with very gentle valley floor topography. Consequently, the potential for slope failure, including seismically-induced landsliding, is low.

#### Liquefaction

Liquefaction is the process in which soils and sediments lose shear strength and fail during seismic ground shaking. The vibration caused by an earthquake can increase pore pressure in saturated materials. If the pore pressure is raised to be equivalent to the load pressure, this causes a temporary loss of shear strength, allowing the material to flow as a fluid. This temporary condition can result in severe settlement of foundations and slope failure. The susceptibility of an area to liquefaction is determined largely by the depth to groundwater and the properties (e.g., grain size and density) of the soil and sediment within and above the groundwater. The sediments most susceptible to liquefaction are saturated, unconsolidated sand and silt within 50 feet of the ground surface (California Geological Survey 2008c).

Although shallow groundwater is present in the project area, the potential for liquefaction is likely low because of the coarseness of the sediments and the low ground-shaking potential.

## Regulatory Setting

### Federal

No Federal regulations apply to geologic hazards in the project area. The following Federal regulation is related to soils.

### Clean Water Act Section 402 (National Pollutant Discharge Elimination System Program)

Section 402 is discussed under Construction Activities Stormwater General Permit (2010-0014-DWQ Permit) in the following section on state regulations.

### State

### Alquist-Priolo Earthquake Fault Zoning Act

California’s Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (Public Resources Code [PRC] Section 2621 et seq.), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce risks to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy[1] across the traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). It also defines criteria for identifying active faults, giving legal weight to terms such as active, and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones.

Under the Alquist-Priolo Act, faults are zoned, and construction along or across them is strictly regulated if they are "sufficiently active" and "well defined." A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for purposes of the act as referring to approximately the last 11,000 years). A fault is considered well-defined if its trace can be identified clearly by a trained geologist at the ground surface, or in the shallow subsurface using standard professional techniques, criteria, and judgment (Bryant and Hart 2007).

### Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (PRC Sections 2690–2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the State is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards; and cities and counties are required to regulate development within mapped seismic hazard zones.

Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within seismic hazard zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans.

### Construction Activities Stormwater General Permit (2010-0014-DWQ Permit)

Section 402 of the Clean Water Act mandates that certain types of construction activity comply with the requirements of the U.S. Environmental Protection Agency's (EPA's) National Pollutant Discharge Elimination System (NPDES) program. The EPA has delegated to the State Water Board the authority for the NPDES program in California, where it is implemented by the state's nine Regional Water Quality Control Boards (RWQCBs). Construction activity disturbing 1 acre or more must obtain coverage under the NPDES *General Permit for Storm Water Discharges Associated with Construction and other Land Disturbance Activities*.

The Central Valley RWQCB administers the NPDES stormwater permit program in Butte County. Obtaining coverage under the General Permit requires that the project applicant:

- File a Notice of Intent and other permit registration documents to obtain coverage under the General Permit before construction begins.
- Prepare and implement a Storm Water Pollution Prevention Plan (SWPPP).
- Conduct inspections, prepare monitoring reports, and possibly conduct water quality monitoring.

[1] With reference to the Alquist-Priolo Act, a *structure for human occupancy* is defined as one "used or intended for supporting or sheltering any use or occupancy, which is expected to have a human occupancy rate of more than 2,000 person-hours per year" (California Code of Regulations, Title 14, Div. 2, Section 3601[e]).

- File a notice of termination with the State Water Board when construction is complete and the construction area has been permanently stabilized.

The SWPPP describes proposed construction activities, receiving waters, stormwater discharge locations, and best management practices (BMPs) that will be used to reduce project construction effects on receiving water quality. The components of the SWPPP most relevant to geology and soils are erosion and sediment control measures. More information on the NPDES and SWPPP is provided in the *Hydrology and Water Quality* section.

Dischargers whose projects disturb 1 or more acres of soil, or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the General Permit Order 2010-0014-DWQ. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

Coverage under the General Permit is obtained by submitting permit registration documents to the State Water Board that include a risk level assessment and a site-specific SWPPP identifying an effective combination of erosion control, sediment control, and non-stormwater BMPs. The General Permit requires that the SWPPP define a program of regular inspections of the BMPs and, in some cases, sampling of water quality parameters.

## Local

### Butte County General Plan 2030

#### Geologic and Seismic Hazards

The Health and Safety Element of the Butte County General Plan 2030 (County of Butte 2010) includes the following goals and policies related to geologic and seismic hazards.

- **Goal HS-6** Reduce risks from earthquakes.
  - **Policy HS-P6.1** Appropriate detailed seismic investigations shall be completed for all public and private development projects in accordance with the Alquist-Priolo Earthquake Fault Zoning Act.
  - **Policy HS-P6.2** Geotechnical investigations shall be completed prior to approval of schools, hospitals, fire stations and sheriff stations, as a means to ensure that these critical facilities are constructed in a way that mitigates site-specific seismic hazards.
  - **Action HS-A6.1** Continue to require applicants to seismically retrofit existing homes where required under existing building codes.
- **Goal HS-7** Reduce risks from steep slopes and landslides.
  - **Policy HS-P7.1** Site-specific geotechnical investigations shall be required to assess landslide potential for private development and public facilities projects in areas rated “Moderate to High” and “High” in Figure HS-4 or the most current available mapping.
- **Goal HS-8** Reduce risks from erosion.
  - **Policy HS-P8.1** Site-specific geotechnical investigations shall be required to assess erosion potential for private development projects and public facilities in areas rated “Very High” in Figure HS-5 or the most current available mapping.

- **Goal HS-9** Reduce risks from expansive soils.
  - **Policy HS-P9.1** Site-specific geotechnical investigations shall be required to assess risks from expansive soils for private development projects and public facilities in areas rated "High" in Figure HS-6 or the most current available mapping.
- **Goal HS-10** Avoid subsidence from groundwater withdrawal.
  - **Policy HS-P10.1** Continue to work with water providers and regulatory agencies to ensure that groundwater withdrawals do not lead to subsidence problems.
  - **Policy HS-P10.2** Existing programs to monitor potential subsidence activity shall be supported.

**Soils**

The Agriculture Element and Area and Neighborhood Plans Element of the plan include the following goal, policies, and objectives related to soils.

- **Goal AG-1** Maintain, promote and enhance Butte County's agriculture uses and resources, a major source of food, employment and income in Butte County.
  - **Policy AG-P1.1** The County supports State and Federal legislation designed to conserve soil and protect agricultural land.
  - **Policy AG-P1.2** The County supports agricultural education and research at Butte County educational institutions.
  - **Policy AG-P1.3** Continue to work with landowners in establishing new and maintaining existing Williamson Act contracts.
    - **Objective D2N-O6.2** Protection of soil resources.

      **a.** To eliminate potential for soil erosion or degradation of its agricultural productivity.
  - **Policy D2N-P6.5** Require standard erosion-control measures and construction practices to minimize soil erosion.
  - **Policy D2N-P6.6** Protect agricultural lands which currently produce, or have the potential to produce, from encroaching urban uses.

### Butte County Grading and Mining Ordinance

Many California counties and cities have grading and erosion control ordinances. These ordinances are intended to ensure slope stability and control erosion and sedimentation caused by construction activities. As part of the grading permit, a project applicant must submit a grading and erosion control plan, project vicinity and site maps, and other supplemental information. Standard conditions in the grading permit include an extensive list of BMPs similar to those contained in a SWPPP.

The purpose of the grading portion of the Butte County Grading and Mining Ordinance is "the control of erosion and siltation, the enhancement of slope stability, the protection of said resources and the prevention of related environmental damage by establishing standards and requiring permits for grading." In general, a grading permit is required for any earthmoving activities involving 50 cubic yards or more of material. Depending on the project, the county may require environmental review, engineering plans and specifications, soils engineering report, and/or an erosion and sediment control plan. However, pursuant to Butte County Code, Section 13-5(c), a grading permit is not required for mining excavations.

## Impact Discussion

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

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

***2. Strong seismic ground shaking?***

***3. Seismic-related ground failure, including liquefaction?***

***4. Landslides?***

There are no known active faults in or near the project area. There would be no impact related to surface fault rupture.

The risk of strong ground shaking in the project area is low and no habitable structures would be constructed that could be affected by ground shaking. This impact would be less than significant. No mitigation is required.

The risk of liquefaction in the study area is low and no habitable structures would be built. This impact would be less than significant. No mitigation is required.

The project area is fairly level overall, so there is little risk of landsliding. There would be no impact. No mitigation is required.

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

Ground-disturbing earthwork associated with all proposed project components in the project area could increase soil erosion rates and loss of topsoil. These activities include excavation, sorting, and grading. This impact could be significant; however, compliance with the erosion-related regulations (i.e., a SWPPP) and implementation of the BMPs described in the project description (Section 1.0(L)(3)(d), "Best Management Practices During Mining Operations") would ensure that the construction activities do not result in significant erosion. As described in the project description, BMPs include, but are not limited to, installation of stormwater BMPs, watering for dust control, erosion control measures. This impact would be less than significant. No mitigation is required.

***c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?***

Improper grading could put people at risk as a result of ground failure. If grading was not conducted appropriately, it could cause unstable slopes and result in ground failure. This would be a significant impact. However, the project area is fairly level overall and no habitable structures would be built. This impact would be less than significant. No mitigation is required.

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

Expansive soils are not known to occur in the project area. In addition, no habitable structures would be built. There would be no impact. No mitigation is required.

***e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal system where sewers are not available for the disposal or waste water?***

The proposed project would not include a septic system. There would be no impact. No mitigation is required.

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

Based on available information and the disturbed nature of the project site, the project will not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. There would be no impact.

## 4.7 Greenhouse Gas Emissions

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **b.** Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | ☐ | ☐ | ☒ | ☐ | ☐ |

## Introduction

This section analyzes the proposed project's potential impacts related to climate change and greenhouse gases (GHGs). It describes existing conditions in the project vicinity and summarizes the overall federal, state, and local regulatory framework for climate change and greenhouse gases, and it analyzes the potential for the proposed project to affect these resources.

## Existing Conditions

This section discusses the existing conditions related to climate change and GHGs..

### Principal Greenhouse Gas Emissions

The primary GHGs generated by the proposed project are carbon dioxide ($CO_2$), methane ($CH_4$), and nitrous oxide ($N_2O$). Each of these gases is discussed in detail below. Note that perfluorocarbons are not discussed because these gases are primarily generated by industrial and manufacturing processes that would not be undertaken for the proposed project.

To simplify reporting and analysis, emissions of GHGs are described in terms of a single gas: $CO_2$. The most commonly accepted method to compare GHG emissions is the global warming potential (GWP) methodology defined in the collective documents published by Intergovernmental Panel on Climate Change (IPCC). The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of $CO_2$ equivalent ($CO_2e$), which compares the gas in question to that of the same mass of $CO_2$ ($CO_2$ has a GWP of 1 by definition). The GWP values used in this report are based on the IPCC Fourth Assessment Report (AR4) and United Nations Framework Convention on Climate Change reporting guidelines and are defined in Table 4.7-1 (Intergovernmental Panel on Climate Change 2007b). The AR4 GWP values are used in ARB's California inventory and AB 32 Scoping Plan First Update (California Air Resources Board 2014).

Table 4.7-1 lists the global warming potential of $CO_2$, $CH_4$, and $N_2O$; their lifetimes; and abundances in the atmosphere.

**Table 4.7-1. Lifetimes and Global Warming Potentials of Several Greenhouse Gases**

| Greenhouse Gases | Global Warming Potential (100 years) | Lifetime (years) | 2016 Atmospheric Abundance |
|---|---|---|---|
| Carbon dioxide ($CO_2$) | 1 | 50–200 | 400 ppm |
| Methane ($CH_4$) | 25 | 9–15 | 1,834 ppb |
| Nitrous oxide ($N_2O$) | 298 | 121 | 328 ppb |

Sources: Intergovernmental Panel on Climate Change 2007b; Blasing 2016.

ppm = parts per million by volume.

ppb = parts per billion by volume.

### Carbon Dioxide

$CO_2$ is the most important anthropogenic GHG and accounts for more than 75% of all GHG emissions caused by humans. Atmospheric $CO_2$ has increased from a pre-industrial concentration of 280 parts per million (ppm) to 400 ppm in 2016 (Intergovernmental Panel on Climate Change 2007b; Blasing 2016). Its atmospheric lifetime of 50–200 years ensures that atmospheric concentrations of $CO_2$ will remain elevated for decades even after mitigation efforts to reduce GHG concentrations are promulgated (Intergovernmental Panel on Climate Change 2007a). The primary sources of anthropogenic $CO_2$ in the atmosphere include the burning of fossil fuels (including motor vehicles), gas flaring, cement production, and land use changes (e.g., deforestation, oxidation of elemental carbon). $CO_2$ can be removed from the atmosphere by photosynthetic organisms.

### Methane

$CH_4$, the main component of natural gas, is the second most abundant GHG and has a GWP of 25. Atmospheric $CH_4$ has increased from a pre-industrial concentration of 715 parts per billion (ppb) to 1,834 ppb in 2016 (Intergovernmental Panel on Climate Change 2007b; Blasing 2016). Sources of anthropogenic emissions of $CH_4$ include rice fields, cattle, natural gas use, landfill outgassing, and coal mining (National Oceanic and Atmospheric Administration 2005). Certain land uses also function as both $CH_4$ sources and sinks. For example, wetlands are terrestrial sources of $CH_4$, and undisturbed, aerobic soils act as a $CH_4$ sink (i.e., they remove $CH_4$ from the atmosphere).

### Nitrous Oxide

$N_2O$ is a powerful GHG with a GWP of 298. $N_2O$ concentrations in the atmosphere have increased 18% from pre-industrial levels of 270 ppb to 328 ppb in 2016 (Intergovernmental Panel on Climate Change 2007b; Blasing 2016). Anthropogenic sources of $N_2O$ include agricultural processes (e.g., fertilizer application), nylon production, fuel-fired power plants, nitric acid production, and vehicle emissions. $N_2O$ is also used in rocket engines, racecars, and aerosol spray containers. Additionally, natural processes such as nitrification and denitrification can produce $N_2O$ that diffuses into atmosphere. In the United States more than 70% of $N_2O$ emissions are related to agricultural soil management practices, particularly fertilizer application.

## Regulatory Setting

This section summarizes key federal, state, and local regulatory information that applies to climate change and GHGs.

### Federal

There is currently no federal overarching law specifically related to climate change or the reduction of GHG emissions. Under the Obama Administration, the United States Environmental Protection Agency (EPA) had been developing regulations under the CAA pursuant to EPA's authority under the CAA.[1]. There have also been settlement agreements between EPA, several states, and nongovernmental organizations to address GHG emissions from electric generating units and refineries, as well as the EPA's issuance of an "Endangerment Finding" and a "Cause or Contribute Finding." EPA has also adopted a Mandatory Reporting Rule and Clean Power Plan. Under the Clean Power Plan, EPA issued regulations to control $CO_2$ emissions from new and existing coal-fired power plants. However, on February 9, 2016 the Supreme Court issued a stay of these regulations pending litigation. Former EPA Administrator Scott Pruitt has also signed a measure to repeal the Clean Power Plan. The fate of the proposed regulations is uncertain given the change in federal administrations and the pending deliberations in federal courts.

### State

The State of California has adopted legislation, and regulatory agencies have enacted policies, addressing various aspects of climate change and GHG emissions mitigation. Much of this legislation and policy activity is not directed at citizens or jurisdictions but rather establishes a broad framework for the state's long-term GHG mitigation and climate change adaptation program.

#### Assembly Bill 32 —California Global Warming Solutions Act (2006)

Assembly Bill (AB) 32 codified the state's GHG emissions target by requiring that the state's GHG emissions be reduced to 1990 levels by 2020. Since AB 32 was adopted, ARB, the California Energy Commission (CEC), California Public Utilities Commission (CPUC), and Building Standards Commission have been developing regulations that will help meet the goals of AB 32 and Executive Order (EO) S-03-05. The Scoping Plan for AB 32, developed by ARB as part of the requirements of AB 32, identifies specific measures and actions to reduce GHG emissions to 1990 levels by 2020 and requires ARB and other state agencies to develop and enforce regulations and other initiatives for reducing GHGs.

#### Climate Change Scoping Plan

On December 11, 2008, pursuant to AB 32, ARB adopted the *Climate Change Scoping Plan*. This plan outlines how emissions reductions from significant sources of GHGs will be achieved via regulations, market mechanisms, and other actions. Six key elements, outlined in the scoping plan, are identified to achieve emissions reduction targets.

1. Expanding and strengthening existing energy efficiency programs and building and appliance standards.
2. Achieving a statewide renewable energy mix of 33%.

[1] In *Coalition for Responsible Regulation, Inc., et al. v. EPA*, the United States Court of Appeals upheld EPA's authority to regulate GHG emissions under the CAA.

3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system.
4. Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets.
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard.
6. Creating targeted fees, including a public goods charge on water use, fees on high–GWP gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation.

The Climate Change Scoping Plan also described recommended measures that were developed to reduce GHG emissions from key sources and activities while improving public health, promoting a cleaner environment, preserving our natural resources, and ensuring that the effects of the reductions are equitable and do not disproportionately affect low-income and minority communities. These measures put the state on a path to meet the long-term 2050 goal of reducing California's GHG emissions to 80% below 1990 levels.

The first update to the AB 32 Scoping Plan was released in February 2014 and includes revised GHG reduction estimates based on updated statewide GHG inventories. The update also discusses the need for continued GHG reduction progress post-2020. As discussed below under Senate Bill (SB) 32, ARB drafted the final proposed *California's 2017 Climate Change Scoping Plan* update November 2017 and it proposes continuing the major programs of the AB 32 Scoping Plan.

**Senate Bill SB 375 (2008)**

SB 375 requires regional transportation plans, developed by Metropolitan Planning Organizations (MPOs), to incorporate a "sustainable communities strategy" (SCS) in their regional transportation plans that will achieve GHG emissions reduction targets set by ARB, which approved the regional targets in March 2018. SB 375 also includes provisions for streamlined CEQA review for some infill projects, such as transit-oriented development. However, those provisions will not become effective until an SCS is adopted.

**Executive Order B-30-15 (2015)**

EO B-30-15 (2015) establishes a statewide GHG reduction target of 40% below 1990 levels by 2030. As of December 2016, California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by 2020, which was previously established in AB 32. The state's new emission reduction target will make it possible to reach the overall goal of reducing emissions 80% under 1990 levels by 2050. EO B-30-15 established a medium-term goal for 2030 of reducing GHG emissions by 40% below 1990 levels and requires the CARB to update its current AB 32 Scoping Plan to identify measures to meet the 2030 target. The EO supports EO S-3-05.

**Senate Bill 32**

SB 32 (2016) requires ARB to ensure that statewide GHG emissions are reduced to at least 40% below the 1990 level by 2030, consistent with the target set forth in EO B-30-15. ARB drafted the 2017 *Climate Change Scoping Plan Update* on January 20, 2017 to meet the GHG reduction requirement set forth in SB 32. It proposes continuing the major programs of the previous Scoping Plan, including Cap-and-Trade Regulation, Low Carbon Fuel Standard (LCFS), more efficient cars, trucks, and freight movement, Renewable Portfolio Standard, and reducing methane emissions from agricultural and other wastes. The Scoping Plan Update also addresses for the first time the greenhouse gas emissions from natural and working lands in California.

## Local

The local air quality district is BCAQMD. BCAQMD does not regulate GHG emissions, nor has BCAQMD established GHG thresholds to measure the significance of GHG emissions from land use conversion or construction projects.

### Butte County

#### Butte County Climate Action Plan

Although Butte County's CEQA guidance does not specify GHG thresholds, the County adopted its Climate Action Plan (CAP) on February 25, 2014 (County of Butte 2014). The plan, which has undergone subsequent updates, is an implementation mechanism of the County's General Plan that was adopted in 2010 and amended in 2012. The Butte County CAP provides goals, policies, and programs to reduce GHG emissions, address climate change adaptation, and improve quality of life in the county. The Butte County CAP also supports statewide GHG emissions-reduction goals identified in AB 32 and SB 375. Programs and actions in the Butte County CAP are intended to help the County sustain its natural resources, grow efficiently, ensure long-term resiliency to a changing environmental and economic climate, and improve transportation. The Butte County CAP also serves as a Qualified GHG Reduction Strategy under CEQA, simplifying development review for new projects that are consistent with the CAP. Section 15183.5 of the State CEQA Guidelines establishes opportunities for CEQA tiering for qualified GHG reduction plans, in which the impacts of projects that that are consistent with the adopted GHG reduction plans can be considered less than significant and their contributions to cumulative emissions are not considered cumulatively considerable; however, the GHG reduction plan must meet Section 15183.5 criteria. The Butte County CAP is not appropriate for tiering the proposed project because it is considered a long-term construction project; however, the CAP can be used for tiering other types of projects.

#### 2014 Butte County Air Quality Management District CEQA Handbook

BCAQMD's 2008 *CEQA Air Quality Handbook* did not provide specific guidance for evaluating GHG impacts. The updated handbook was released in 2014 and was used to prepare this document (Butte County Air Quality Management District 2014). The 2014 handbook recommends that CEQA analyses addressing the potential impacts of project-generated GHG emissions include the following:

- An inventory of the project's construction and operational sources of GHGs and the time periods when emissions are expected, distinguishing BCAQMD-permitted stationary sources from mobile and other non-permitted sources.
- The current state of the science with respect to GHGs and climate change and the existing regulatory environment.
- The non-project GHG setting representing the baseline for determining the project's impact.
- Identification of the thresholds of significance applicable to the proposed project. The lead agency may consider thresholds of significance adopted or recommended by other lead agencies, or adopt its own thresholds, provided the decision is supported by substantial evidence. Alternatively the lead agency may consider thresholds based on the goals of AB 32.

## Environmental Effects

Potential impacts of the proposed project on climate change and greenhouse gases are discussed in the context of State CEQA Guidelines Appendix G checklist items.

## Assessment Methods

This section describes the analysis of environmental consequences related to climate change and GHG for the proposed project.

Quantitative estimates of GHG emissions for the proposed project were forecast using construction activity data presented in Section 1, *Project Information*, and using default emission factors from CalEEMod (Version 2016.3.2). Detailed information on the emission calculation methods is provided in Appendix B. The following types of project-specific information were used.

- Duration of construction activity at the proposed project site.
- Type of each construction equipment, number of pieces of each type, horsepower, and the duration of each type of construction activity. Appendix B provides a list of the equipment that would be used at the proposed project site and a forecast of equipment usage. The proposed project site is within the jurisdiction of BCAQMD.
- Equipment usage at the proposed project site was assumed to be a maximum of 9 hours per day. Equipment usage as a percentage of maximum hours of daily usage is presented in Table 1-3 of Section 1.
- Quantity of water to be delivered to the proposed project site from the pump station located at the south end of the project site.
- Number of haul truck, employee, and vendor vehicle trips.
- Default load factors for each type of construction equipment were set by CalEEMod.
- Default emission factors for fuel consumption and GHG emission rates ($CO_2$ and $CH_4$) for off-road construction equipment, on-road delivery trucks, and on-road commute vehicles were set by CalEEMod.

## Determination of Effects

### Sacramento Metropolitan Air Quality Management District GHG Thresholds of Significance

As previously mentioned, BCAQMD has not established GHG thresholds to measure the significance of GHG emissions from land use or construction projects. The Sacramento Metropolitan Air Quality Management District (SMAQMD) adopted GHG thresholds in October 2014 to evaluate and disclose the significance of GHG emissions from land use and construction projects in compliance with CEQA and the AB 32 Scoping Plan. SMAQMD's GHG thresholds, which have been designated Sacramento Area Regional GHG Thresholds, were established using guidance from the California Air Pollution Control Officers Association (CAPCOA) on how to develop the threshold concepts for evaluating project-level GHG emissions (Huss pers. comm.). The thresholds also incorporated input from a committee of regional air districts.

Although the Sacramento Area Regional GHG Thresholds were not formally adopted by BCAQMD, BCAQMD and other districts in the region (e.g., Yolo Solano Air Management District, Placer County Air Pollution Control District, El Dorado County Air Quality Management District) use them for GHG analyses. These thresholds are used to determine the significance of GHG emissions from the proposed project, because these thresholds were developed with a regional perspective and are in compliance with expert advice from CAPCOA.

Although not formally adopted by BCAQMD, SMAQMD's Sacramento Area Regional GHG Thresholds were used to evaluate the forecast emissions for the project modifications for multiple reasons. The thresholds, which are based on AB 32's requirement to reduce statewide GHG emissions from both existing and new development to 1990 levels by 2020, rely upon a capture rate and a gap analysis, which is tied back to AB 32 reduction targets (i.e., 1990 levels by 2020). The Sacramento Area Regional GHG Thresholds reflect regional land use conditions, including density and access to transit. Because these thresholds are specific to the project region, mirror CAPCOA's expert guidance, and are consistent with the objectives of AB 32, they were determined to be an effective benchmark for evaluating the significance of GHG emissions for the proposed project (see *Citizens for Responsible Equitable Environmental Development [CREED]* v. *City of Chula Vista* [July 2011, 197 Cal.App.4th 327]). Additionally, although Butte County adopted CAPs or similar program-level GHG reduction documents, the guidance provided in these documents is not appropriate for evaluating or tiering effects related to construction-only projects such as the proposed project. A CAP is intended to present a strategy to reduce long-term emissions most commonly associated with development projects or related actions that have a long-term operational component.

The Sacramento Area Regional GHG Thresholds include the following project categories and emission levels.

- **Stationary source projects**: 10,000 direct metric tons of $CO_2$e per year.
- **Operation of a land development project**: 1,100 metric tons $CO_2$e per year.
- **Construction of a project**: 1,100 metric tons $CO_2$e per year.

Because the Sacramento River Salmon Gravel Restoration Project is considered a long-term construction project, the Sacramento Area Regional GHG Threshold for project construction of 1,100 metric tons $CO_2$e per year was used as the criterion to determine whether construction-source emissions would be significant under CEQA. Construction-related annual emissions of less than 1,100 metric tons of $CO_2$e per year would result in a less-than-significant impact on global climate change. Annual emission levels that exceed this threshold are considered significant and must be mitigated below 1,100 metric tons of $CO_2$e.

## Impact Discussion

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

Maximum emissions associated with the project are anticipated to occur during mining activities in 2019, which are summarized in Table 4.7-2. An equal amount of construction activity is assumed for each of the 20 years within the construction period. Annual emissions from mining activities are compared with the SMAQMD GHG threshold for the worst-case year of mining activities to assess the level of significance of project GHG emissions. Given the equal amount of construction activity occurring every year, the first year of construction (2019) would be assumed as the worst-case scenario in terms of criteria pollutant emissions. This is because statewide fleet-average construction equipment was assumed for this project and, as newer, cleaner-burning pieces of equipment enter the statewide inventory of off-road and on-road equipment, they replace older, less-efficient pieces of equipment over time. As indicated in Table 4.7-2, the $CO_2$e emissions associated with mining operations without mitigation would be 898 MT in 2019 and would be below the 1,100 MT threshold used to evaluate the proposed project. Therefore, this effect would be less than significant.

**Table 4.7-2. Estimated Greenhouse Gas Emissions during Construction**

| | GHG Metric Tons | | | |
|---|---|---|---|---|
| Year | $CO_2$ | $CH_4$ | $N_2O$ | $CO_2e$ |
| 2019 | 896 | 0.1 | < 0.1 | 898 |
| **$CO_2$e Emissions Threshold** | | | | **1,100** |

[a] Global warming potentials of $CO_2$ = 1, $CH_4$ = 25, $N_2O$ = 298 (Intergovernmental Panel on Climate Change 2007b).

Note: Values may not add due to rounding.

GHG = greenhouse gas.
$CO_2e$ = carbon dioxide equivalent.
$CO_2$ = carbon dioxide.
$CH_4$ = methane.
$N_2O$ = nitrous oxide.

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

At the time of preparation of this document, no federal, state, or local agency with jurisdiction over the project site had adopted plans or regulations that set specific goals for emission limits or emission reductions applicable to the proposed project. As described under Impact a, the estimated emissions from implementation of the proposed project were compared with significance thresholds that were derived from the Sacramento Area Regional GHG Thresholds that are conservatively low. The estimated emissions for the proposed project are below the significance thresholds. Therefore, implementation of the project would not conflict with, or obstruct, the implementation of GHG emission reduction plans. This effect would be less than significant.

## 4.8 Hazards and Hazardous Materials

| **Would the proposal:** | **Potentially Significant Impact** | **Less Than Significant with Mitigation Incorporated** | **Less Than Significant Impact** | **No Impact** | **Reviewed Under Previous Document** |
|---|---|---|---|---|---|
| **a.** Create a significant hazard to the public or the environmental through the routine transport use, or disposal of hazardous materials? | ☐ | ☒ | | ☐ | ☐ |
| **b.** Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | ☐ | ☒ | ☐ | ☐ | ☐ |
| **c.** Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed schools? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **d.** Be located on a site which is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **e.** For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **f.** For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **g.** Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **h.** Expose people or structures to a significant risk or loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | ☐ | ☐ | ☒ | ☐ | ☐ |

## Introduction

This section analyzes the proposed project's potential impacts related to hazards and hazardous materials.

## Setting

This section discusses the existing conditions related to hazards and hazardous materials in the project area.

### Schools

No schools are located within or near the project area. The nearest school, Rosedale Elementary School, is located approximately 6 miles east of the project site.

### Known Sources of Hazardous Materials

The California Department of Toxic Substances Control's (DTSC's) Envirostor database provides access to detailed information on hazardous waste facilities within California, including permitted activities, and corrective actions for site cleanup. According to the Envirostor database, the nearest potentially hazardous site is a 20-acre former waste disposal area located approximately 4 miles northeast of the project site containing elevated levels of lead (DTSC 2018).

### Airports and Airstrips

The project site is not located within an airport land use plan (County of Butte 2012: 4-28), nor is the project site located within 2 miles of a public airport. The closest public airport is the Chico Municipal Airport, which is located approximately 7.3 miles northeast of the proposed project site. The closest private airstrip is Ranchaero Airport, which is located approximately 3.7 miles east-northeast of the proposed project site.

### Wildland Fires

The large areas of undeveloped and agricultural land near the project area typically pose a risk for wildland fires. The California Department of Forestry and Fire Protection (CAL FIRE) identifies areas of very high fire hazard severity zones within both State Responsibility Areas and Local Responsibility Areas (LRAs), and maps these severity zones based on modeling of expected fire behavior over a 30-50 year period (California Department of Forestry and Fire Protection 2008). The project area falls within a CAL FIRE-designated LRA categorized as a Non-Very High Fire Hazard Severity Zone (Non-VHFHSZ) (California Department of Forestry and Fire Protection 2008). As such, the modeled risk of wildland fire is low.

Fire protection and emergency services in and around the project area are provided by the Butte County Cooperative Fire Agencies, a cooperative system consisting of CAL FIRE, Butte County, and partner cities. The project area falls within the Butte County Cooperative Fire Agencies' North Division, which consists of four battalions primarily serving the Chico, Durham, and Paradise areas, and works in cooperation with the City of Chico and the town of Paradise (County of Butte 2018a). The nearest fire station to the project site is City of Chico Station 1, which is 6.4 miles east of the project site.

## Impact Discussion

***a. Create a significant hazard to the public or the environmental through the routine transport use, or disposal of hazardous materials or***

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

Activities associated with the proposed project would involve hazardous materials, such as fuels and lubricants, from the operation of equipment and vehicles on-site. Fuels and lubricants have the potential to be released into the environment at individual construction sites and along haul routes, causing potential environmental and human exposure to these hazards. Although the types and quantities of hazardous materials that would be used during project implementation are not considered acutely hazardous and would not pose a substantial risk to human health and/or safety, release of hazardous materials without subsequent containment would be considered a significant impact. Implementation of Mitigation Measure HAZ-1 and adoption of a SWPPP (discussed in Section 4.6, Geologic Processes), which would include methods to protect water quality in response to emergency spills, would ensure that this impact is less than significant.

**Mitigation Measure HAZ-1: Prepare and Implement a Spill Prevention, Control, and Countermeasure Plan**

Before project implementation begins, a Spill Prevention, Control, and Countermeasure Plan (SPCCP) will be prepared to reduce the potential effects of hazardous materials and spills during mining operations. The SPCCP will identify staging areas where hazardous materials would be stored during project implementation and include an accidental spill prevention and response plan. The SPCCP also will identify potential hazardous materials that would be used during construction activities and include appropriate practices to reduce the likelihood of a spill of toxic chemicals and other hazardous materials during project implementation, which may include the following:

- Protocols for proper handling and disposal of materials will be established prior to project implementation.
- Spill prevention measures will include stockpiling absorbent booms, staging hazardous materials at least 25 feet away from the Sacramento River and Big Chico Creek, and maintaining and checking equipment to prevent fuel and lubrication leaks. Additional spill prevention measures will include specific actions regarding the containers, handling, and transport of fuel to the barge, and refueling practices.
- Any spill within the floodplain will be reported to NMFS, CDFW, and other appropriate resource agencies within 48 hours.
- All measures from the 1602 Streambed Alteration Agreement and 401 water quality certification will be adhered to.

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

As described above in the Setting section, the project site is not located near an existing or proposed school. The nearest school is approximately 6 miles away from the project site. There would be no impact.

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

As described above in the Setting section, the nearest known hazardous materials site is located approximately 4 miles northeast of the project site. The proposed project is therefore not located on a site included on a list of hazardous materials sites. There would be no impact.

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

As described above in the Setting section, the project site is not located within an airport land use plan area or within two miles of a public or public use airport. There would be no impact.

***f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?***

As described above in the Setting section, the project site is not located within the vicinity of a private airstrip. There would be no impact.

***g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?***

During project implementation, there would be in increase in vehicular traffic transporting workers and aggregate. However, project implementation would not involve temporary or permanent obstruction of any major roadways within or near the project site and would not otherwise interfere with emergency operations or evacuations. Further, the project site is not located within an area covered by an adopted community evacuation plan or a community evacuation map (County of Butte 2018b), and the Butte County General Plan does not identify the project area as an area with impacted evacuation routes (County of Butte 2012: 11-43). This impact would therefore be less than significant.

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

The project area consists primarily of a highly disturbed floodplain containing a large gravel spoils pile that is primarily devoid of vegetation, but that does have some ruderal vegetation on the margins (MWH 2014:7). No residences are present within the project site and the site is not located adjacent to an urbanized area or an area where residences are intermixed with wildlands. CAL FIRE has characterized the area as a Non-VHFHSZ. Because the project site is not located in a high fire hazard zone and already receives fire protection services from Butte County Cooperative Fire Protection, the conditions and services necessary to protect the project site and vicinity are in place. This impact would be less than significant.

## 4.9 Hydrology and Water Quality

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Violate any water quality standards or waste discharge requirements? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **b.** Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **c.** Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation onsite or offsite? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **d.** Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **e.** Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **f.** Otherwise substantially degrade water quality? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **g.** Place housing within a 100-year flood hazard area as mapped by Federal Flood Hazard Boundary, Flood Insurance Rate Map, or other flood hazard delineation map? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **h.** Place within a 100-year flood hazard area structures which would impede or redirect flood flows? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **i.** Expose people or structures to a significant risk or loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **j.** Inundation by seiche, tsunami, or mudflow? | ☐ | ☐ | ☐ | ☒ | ☐ |

## Environmental Setting

### Regional Setting

The proposed project is within the Sacramento River Hydrologic Region, which encompasses an area of approximately 17.4 million acres (27,200 square miles) and contains all or large portions of Modoc, Siskiyou, Lassen, Shasta, Tehama, Glenn, Plumas, Butte, Colusa, Sutter, Yuba, Sierra, Nevada, Placer, Sacramento, El Dorado, Yolo, Solano, Lake, and Napa Counties (California Department of Water Resources 2003:158). Most of northern California is located in the Sacramento River Hydrologic Region, which encompasses several watersheds of varying size.

## Physiography

The project site is located on a parcel bounded by the Sacramento River to the immediate west and Big Chico Creek on the north. The Sacramento River is the principal river of Northern California and is also the largest river in California. Beginning in the Klamath Mountains, the river flows south for approximately 445 miles before reaching the Sacramento–San Joaquin River Delta (Delta) and San Francisco Bay. The river drains about 27,500 square miles in 19 California counties, mostly within a region bounded by the northern Coast Range and Sierra Nevada known as the Sacramento Valley, but also extending as far as the volcanic plateaus of Northeastern California. Big Chico Creek originates near Colby Mountain, located in Tehama County, California. The creek flows 46 miles west to its confluence with the Sacramento River in Butte County. The creek's elevation ranges from 120 feet above sea level at the Sacramento River to 6,000 feet at Colby Mountain.

## Surface Water Hydrology

### Sacramento River

Sacramento River baseflow levels are controlled by releases from Shasta Dam and, to a lesser extent, from Oroville Dam. The releases are adjusted to meet downstream requirements for a variety of uses, including flood control; water supply; Delta water quality, fish, and wildlife habitat maintenance; and other beneficial uses. Despite the regulated nature of the system, flow conditions in the river have a somewhat predictable pattern defined by season. The California Department of Water Resources (DWR) and USGS measure flows in the Sacramento River at various locales, including the Hamilton City gaging station, which is located approximately eight miles upstream of the project site.

The 1.5- and 2-year recurrence interval peak discharges are approximately 70,900 and 90,000 cubic feet per second (cfs), respectively. Bankfull discharge in this reach of the Sacramento River is approximately 90,000 cfs, comparable to the 2-year peak discharge (Tetra Tech 2011 as cited in California Department of Water Resources 2013:3-174). The 50- and 100-year peak flow events are 237,800 and 275,900 cfs, respectively (U.S. Army Corps of Engineers 2008 as cited in Tetra Tech 2011:3-174).

### Big Chico Creek

Big Chico Creek flows into the Sacramento River upstream of the M&T/Llano Seco Pumps Facility. Baseflows in Big Chico Creek during the summer typically range from 20 to 25 cfs above Five-Mile (east Chico) Diversion (National Marine Fisheries Services 2009 as cited in Tetra Tech 2011:3-181). An analysis by Mussetter Engineering (2005 as cited in California Department of Water Resources 2013:3-182) indicated that the discharge in Big Chico Creek is typically in the range of 1,000 cfs to 1,500 cfs when the discharge in the Sacramento River is in the range of bankfull (85,000 cfs to 95,000 cfs).

## Surface Water Quality

The Basin Plan (Central Valley Regional Water Quality Control Board 2018) describes beneficial uses for the Sacramento River from Shasta Dam to the Colusa Basin Drain (Table 4.9-1). Section 303(d) of the CWA established the total maximum daily load (TMDL) process to assist in guiding the application of state water quality standards. Section 303(d) requires states to identify streams in which water quality is impaired (i.e., affected by the presence of pollutants or contaminants) and to establish the TMDL, which is the maximum quantity of a particular contaminant that a water body can assimilate without experiencing adverse effects. Table 4.9-2 shows CWA 303(d) listed impairments for the Feather River based on the 2010 California Integrated Report (California State Water Resources Control Board 2011).

**Table 4.9-1. Designated Beneficial Uses for Surface Water Bodies in the Project Vicinity**

| Water Body | Designated Beneficial Uses |
|---|---|
| Sacramento River (Shasta Dam to the Colusa Basin Drain) | Municipal and domestic supply; irrigation and stock watering for domestic use; service supply and power for industrial use; warmwater fish[a] migration and spawning habitat; coldwater fish[b] migration and spawning habitat; warm and cold freshwater habitat (resident fish); contact recreation; canoeing and rafting; other non-contact water recreation; wildlife habitat; navigation. |
| Big Chico Creek | Irrigation and stock watering for domestic use; warmwater fish[1] spawning habitat; coldwater fish[2] migration and spawning habitat; warm and cold freshwater habitat (resident fish); contact recreation; canoeing and rafting; other non-contact water recreation; wildlife habitat. |

[a] Striped bass, sturgeon and shad (Central Valley Regional Water Quality Control Board 2018).
[b] Salmon and steelhead (Central Valley Regional Water Quality Control Board 2018).
Source: Central Valley Regional Water Quality Control Board 2018 (Table 2-1)

**Table 4.9-2. CWA 303(d) Listed Impaired Waters with Potential to be Affected by the Proposed Project**

| Water Body | Pollutant Stressors | Potential Sources | TMDL Completion Date |
|---|---|---|---|
| Sacramento River (Red Bluff to Knights Landing) | DDT | Agriculture | Est. 2021 |
| | Dieldrin | Agriculture | Est. 2021 |
| | Mercury | Resource extraction | Est. 2021 |
| | PCBs | Unknown | Est. 2021 |
| | Unknown toxicity | Unknown | Est. 2019 |
| Big Chico Creek | Mercury | Resource extraction | Est. 2021 |

Source: 2010 Integrated Report (California State Water Resources Control Board 2011)
DDT = Dichlorodiphenyltrichloroethane
PCBs = polychlorinated biphenyls

### Groundwater Hydrology

DWR delineates groundwater basins throughout California under the state's Groundwater Bulletin 118. The proposed project is located in the Sacramento Valley Groundwater Basin, West Butte Subbasin (Basin No. 5-21.58), which covers an area of 284 square miles spread over Butte, Colusa and Glenn Counties.

The subbasin is bounded on the west and south by the Sacramento River, on the north by Big Chico Creek, on the northeast by the Chico Monocline, and on the east by Butte Creek. Big Chico and Butte Creeks serve as subbasin boundaries in the near surface. The subbasin is hydrologically contiguous with the Vina and East Butte Sub-Basins at depth. The Chico Monocline forms a geographic boundary; however, a component of recharge to the subbasin appears east of the fault structure. Groundwater flow is southwesterly toward the Sacramento River north of the city of Princeton. South of Princeton, groundwater flows away from the Sacramento River to recharge the groundwater system (see Appendix A, page 9)

### Groundwater Quality

The groundwater in the area generally is considered good based on a USGS water quality survey of the Sacramento Valley (U.S. Geological Survey 1978 as cited in California Department of Water Resources

2013:3-190 and 191). Groundwater is characterized as calcium-magnesium-carbonate water, generally low in sulfates and chlorides, and having moderate dissolved mineral content with a low sodium absorption ratio. The Butte County Department of Water and Resource Conservation has monitored groundwater quality since 2002. These efforts, in addition to monitoring by other state and federal agencies, indicate that Butte County's groundwater is of high quality, free of saline intrusion and generally in good health (County of Butte 2018:156).

## Regulatory Setting

### Federal

#### Clean Water Act

The CWA is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. It operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit. Permit review is the CWA's primary regulatory tool under the following sections.

- Section 404, which regulates the discharge of dredged and fill materials into "waters of the United States," which include oceans, bays, rivers, streams, lakes, ponds, and wetlands. Project proponents must obtain a permit from USACE for all discharges of dredged or fill material into waters of the United States before proceeding with a proposed activity.
- Section 402, regulates discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program, administered by EPA. In California, the State Water Board is authorized by EPA to oversee the NPDES program through the Regional Water Quality Control Boards (RWQCBs). The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits. A SWPPP and pollution prevention and monitoring program (PPMP) may be required for the project to comply with the Construction General Permit and General Dewatering Permit, respectively, under Section 402.
- Section 401, under which applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate.
- Section 303, under which California adopts water quality standards to protect beneficial uses of state waters as required by CWA Section 303 and the Porter-Cologne Water Quality Control Act of 1969. Section 303(d) of the CWA requires the identification of water bodies that do not meet, or are not expected to meet, water quality standards (i.e., impaired water bodies). In California, the State Water Board develops the list of water quality-limited segments and the EPA approves the state's list.

The State Water Board is the state agency with primary responsibility for implementing the CWA, which establishes regulations relating to water resources issues. Typically, all regulatory requirements are implemented by the State Water Board through nine RWQCBs established throughout the state. The Central Valley RWQCB, discussed in the state regulatory setting below, is responsible for regulating discharges to the Sacramento River and its tributaries.

### State

#### Porter-Cologne Water Quality Control Act of 1969

The Porter-Cologne Water Quality Control Act established the State Water Board and nine RWQCBs as the primary state agencies with regulatory authority over California water quality and appropriative surface water rights allocations. Under this act (and the CWA), the state is required to adopt a water quality control policy and waste discharge requirements to be implemented by the State Water Board and nine RWQCBs. The State Water Board also establishes Water Quality Control Plans (Basin Plans) and statewide plans. The RWQCBs carry out State Water Board policies and procedures throughout the state. Basin Plans designate beneficial uses for specific surface water and groundwater resources and establish water quality objectives to protect those uses.

#### Central Valley Regional Water Quality Control Board

The Central Valley RWQCB is responsible for implementing its Basin Plan (2018) for the Sacramento River and its tributaries, including the Feather River. The Basin Plan identifies beneficial uses of the river and its tributaries and water quality objectives to protect those uses. Numerical and narrative criteria are contained in the Basin Plan for several key water quality constituents, including dissolved oxygen, water temperature, trace metals, turbidity, suspended material, pesticides, salinity, radioactivity, and other related constituents.

### Local

#### Butte County General Plan

The *Butte County General Plan 2030* was adopted in October 2010 and amended on November 6, 2012 (County of Butte 2018). The plan includes a goal and a policy related to water resources.

- Goal W-1 Maintain and enhance water quality.
  - Policy W-P1.1 County planning and programs shall be integrated with other watershed planning efforts, including best management practices, guidelines and policies of the Central Valley RWQCB.

#### Butte County Storm Water Management Program

Butte County has been covered under an NPDES Phase II MS4 General Permit since 2004, which covers the urbanized unincorporated areas within and around the City of Chico. As part of permit compliance, the Butte County Department of Public Works implements a Storm Water Management Program (Butte County Public Works 2013).

## Impact Discussion

***a. Violate any water quality standards or waste discharge requirements?***

Ground-disturbing earthwork associated with all proposed project components at the project site could increase soil erosion rates and loss of topsoil, thereby potentially violating water quality standards. These activities include excavation, sorting, and grading. This impact could be significant; however, compliance with the erosion-related regulations (i.e., a SWPPP) and implementation of the BMPs described in the project description (Section 1.0(L)(3)(d), *Best Management Practices During Mining Operations*) would ensure that project-related activities do not result in significant erosion.

The SWPPP would identify erosion and sediment control measures to be implemented during excavation, sorting, and grading activities to ensure the land disturbance activities do not cause erosion that would increase sedimentation in the Sacramento River or Big Chico Creek. Site-specific erosion and sediment control measures would be developed by a qualified SWPPP developer as part of a SWPPP, a requirement of the NPDES Construction General Permit, including implementation of the SWPPP by a qualified SWPPP practitioner. A SWPPP typically includes erosion and sedimentation control measures, site management practices, materials and waste management, and general preventive maintenance and inspection. These measures would prevent excavated and eroded soils, construction materials, or debris from being transported to receiving waters. The proposed project SWPPP is anticipated to contain, but is not limited to, the following BMPs.

- Timing of construction. The construction contractor will conduct all excavation, sorting, and grading activities during the typical construction season to avoid ground disturbance during the rainy season.
- Staging of equipment and materials. To the extent possible, equipment and materials will be staged in areas that have already been disturbed.
- Minimize soil and vegetation disturbance. The construction contractor will minimize ground disturbance and the disturbance/destruction of existing vegetation. This will be accomplished in part through the establishment of designated equipment staging areas, ingress and egress corridors, and equipment exclusion zones prior to the commencement of any grading operations.
- Stabilize grading spoils. Grading spoils generated during construction will be temporarily stockpiled in staging areas. Silt fences, fiber rolls, or similar devices will be installed around the base of the temporary stockpiles to intercept runoff and sediment during storm events. If necessary, temporary stockpiles may be covered with an appropriate geotextile to increase protection from wind and water erosion.
- Install sediment barriers. The construction contractor may install silt fences, fiber rolls, or similar devices to prevent sediment-laden runoff from leaving the project site.
- Stormwater drain inlet protection. The construction contractor may install silt fences, drop inlet sediment traps, sandbag barriers, and similar devices.
- Permanent site stabilization. The construction contractor will install structural and vegetative methods to permanently stabilize all graded or otherwise disturbed areas once project implementation is complete. Structural methods may include the installation of biodegradable fiber rolls and erosion control blankets. Vegetative methods may involve the application of organic mulch and tackifier and/or the application of an erosion control seed mix. Implementation of a SWPPP by a qualified SWPPP practitioner will substantially minimize the potential for project-related erosion and associated adverse effects on water quality.
- Monitoring. The qualified SWPPP practitioner will routinely inspect the project site to verify that the erosion and sediment control measures and other applicable BMPs specified in the SWPPP are properly implemented and maintained. The qualified SWPPP practitioner will make BMP adjustments in the field as necessary.

In addition, Mitigation Measure HAZ-1 (Section 4.8, *Hazardous Materials*) requires a Spill Prevention, Control, and Countermeasure Plan (SPCCP), which would identify staging areas where hazardous materials would be stored during project implementation and include an accidental spill prevention and response plan. The plan also would identify potential hazardous materials that would be used during construction activities and include appropriate practices to reduce the likelihood of a spill of toxic chemicals and other hazardous materials during project implementation.

Note that a turbidity monitoring plan would not be required as part of the proposed project due to the distance of the stockpile from any receiving water bodies. Up to three settling ponds would be operating during aggregate removal. The three ponds would be located side by side, and sediment-laden water would come in on one end, and then decant to the second and third ponds, after which the water would be sediment free.

This impact would be less than significant. No mitigation is required.

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

Excavation of the existing stockpile within the extraction area is not expected to expose the local groundwater table. As such, dewatering would not be necessary. The proposed project activities would not involve groundwater extraction or the lowering of the local groundwater table. In addition, excavation, sorting, and grading are not likely to interfere substantially with groundwater recharge because construction would occur during the dry season when recharge typically does not occur.

There would be no impact. No mitigation is required.

***c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation onsite or offsite?***

As described in the project description (Section 1.0(L)(5)(a), *Final Slope Grading, Decompaction, and Road Reclamation*) mining activities would remove a stockpile of material that is roughly 20 feet in height and leave a fairly level area that has a final elevation of approximately 135 feet MSL. Final grading of the project site would return the site to a condition that existed prior to stockpiling of alluvial aggregates, while providing for proper drainage. Low areas in the topography would be filled, and hummocks and sand mounds would be flattened, providing stable drainage. In general, the area would be graded at 1 to 2 percent to direct runoff away from the Sacramento River and Big Chico Creek toward several low-lying areas where water would percolate into the sub-surface or evaporate. Along the eastern limits of the Excavation/Operation Area, the slope of the adjacent levee would be reestablished to 2:1, and the road on top of the levee would remain in place to provide landowner and levee inspection access. Although the landscape would be altered as a result of project activities, the actions described herein would minimize substantial erosion or siltation onsite or offsite.

This impact would be less than significant.

***d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?***

As discussed above for Impact *c*, final grading of the project site would return the site to a condition that existed prior to stockpiling of alluvial aggregates, while providing for proper drainage. In addition to grading the site to drainage purposes, compacted areas of the project site would be ripped to a depth of at least six inches to decompact the surface in preparation for revegetation. All soil surfaces that are to be revegetated would be left in as rough a condition as possible in order to create small cracks and crevices to improve water filtration and in which to allow seeds to lodge. Areas where existing vegetation is established and proper drainage exists would not require grading to achieve reclamation. Establishing stable drainage courses and revegetation of the site would minimize the rate or amount of surface runoff which would result in flooding onsite or offsite.

This impact would be less than significant. No mitigation is required.

***e. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?***

The proposed project would not alter the capacity of existing or planned stormwater drainage systems. In addition, the proposed project would not provide substantial additional sources of polluted runoff, and most disturbed areas would be revegetated to prevent soil erosion.

There would be no impact. No mitigation is required.

***f. Otherwise substantially degrade water quality?***

As discussed above for checklist item *a*, implementation of the SWPPP would prevent impacts on water quality. In addition, the proposed project would enhance streamflow primarily by increasing floodplain inundation within the project area via removal of the existing stockpile. Recontouring the landscape within the project area would lead to increased habitat diversity throughout the project area. Restoration of vegetation would stabilize the area, minimizing the erosion risk.

Removal of the existing stockpile would allow for a more direct connection between the local floodplain and adjacent water bodies. The most substantial water quality improvement is the enhancement of subsurface (hyporheic) flows, which are important for surface water/groundwater interactions, fish spawning and rearing, and other biological and hydrologic processes.

There would be no impact. No mitigation is required.

***g. Place housing within a 100-year flood hazard area as mapped by Federal Flood Hazard Boundary, Flood Insurance Rate Map, or other flood hazard delineation map?***

The proposed project would not place housing within a 100-year flood hazard area as mapped by any regulatory agency.

There would be no impact.

***h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?***

The proposed project would not place any structures that would impede or redirect flood flows within a 100-year flood hazard area as mapped by any regulatory agency.

There would be no impact.

***i. Expose people or structures to a significant risk or loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?***

The proposed project would not expose people or structures to a significant risk or loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

There would be no impact.

***j. Inundation by seiche, tsunami, or mudflow?***

The proposed project would not expose people or structures to inundation by seiche, tsunami, or mudflow. There would be no impact.

## 4.10 Land Use

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Physically divide an established community? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **b.** Conflict with an applicable land use plan, policy, or regulations of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **c.** Conflict with any applicable habitat conservation plan or natural community conservation plan? | ☐ | ☐ | ☐ | ☒ | ☐ |

## Introduction

This section analyzes the proposed project's potential impacts related to land use. It describes the existing conditions in the project area, summarizes local regulatory frameworks, and analyzes the potential for the project to impact land use.

## Environmental Setting

Please see Section 1.0, "Project Information," for a general description of the land uses surrounding the project site. As identified in that section, land use is predominantly covered by intensive commercial agriculture, with some wetlands, riparian habitat, and valley oak woodland. The project site itself is a disturbed, unvegetated area, and is mostly covered by the gravels dredged from the Sacramento River during dredging operations in 2001 and 2007. Dirt access roads line the perimeter of the project site.

## Regulatory Setting

The following section summarizes applicable land use regulatory information that applies to the project area.

### Butte Regional Conservation Plan

The Butte Regional Conservation Plan (BRCP), currently in development, will serve as a federal Habitat Conservation Plan (HCP) and state Natural Community Conservation Plan (NCCP) for the geographic area encompassing lowland Butte County and the cities of Chico, Oroville, Gridley, and Biggs. The BRCP is intended to streamline the environmental permitting process for federal and state endangered and threatened species in the plan area over a 50-year period, establish conservation easements, and contribute to the recovery of species and the conservation of their ecosystems (Butte County Association of Governments 2015: 1-1, 1-4, 1-5, and 1-8). Because the BRCP is currently in development and has not yet been adopted, it is not considered further in this analysis.

### Butte County General Plan

The Butte County General Plan contains goals and policies that guide the general distribution and intensity of land uses within unincorporated Butte County, enabling the County to direct growth to areas within or near existing developed areas in order to preserve and minimize impacts on natural and agricultural resources. The Butte County General Plan includes the following relevant goals and policies related to land use.

**Goal LU-1.** Continue to uphold and respect the planning principles on which the County's land use map is based.

- **LU-P1.1.** The County shall protect and conserve land that is used for agricultural purposes, including cropland and grazing land.
- **LU-P1.2.** The County shall promote economic development and job-generating industry in unincorporated areas.

As described above, the Butte County General Plan specifies land use designations for all properties within unincorporated Butte County. The General Plan designates the project site as Agriculture (AG) (County of Butte 2012: Figure LU-3). The AG land use designation is described in the General Plan as follows:

> **Agriculture.** This designation allows the cultivation, harvest, storage, processing, sale, and distribution of all plant crops, especially annual food crops, as well as roadside stands for the sale of agricultural products grown or processed on the property. The Agriculture designation also allows livestock grazing, animal husbandry, intense animal uses, and animal matter processing. Alternative energy facilities are allowed in the Agriculture designation, subject to permit requirements. Residential uses in the Agriculture land use designation are limited to one single-family dwelling and a second dwelling unit per legal parcel. Farm labor housing is also permitted. The minimum parcel size is between 20 to 160 acres, although existing parcels smaller than the minimum may remain as legal parcels.

The General Plan land use designations are implemented through the zoning designations applied in the County's Zoning Ordinance, which is discussed below (County of Butte 2012: 50-54).

### Butte County Zoning Ordinance

The Butte County Development Services department has zoned the parcel within which the project site is located as Agriculture, with a minimum parcel size of 160 acres (Butte County Development Services 2018). The purpose of the "Agriculture (AG)" zoning designation is to support, protect, and maintain a viable, long-term agricultural sector in Butte County. Permitted uses include crop cultivation, animal grazing, stock ponds, and agricultural processing. Mining and surface mining operations on lands zoned as AG require the approval of a Conditional Use Permit from Butte County (County of Butte 2013: 15-16).

## Impact Discussion

***a. Physically divide an established community?***

As described above in the Environmental Setting section, the project area is located in rural Butte County and surrounded by agricultural operations and open space. No communities are present either within the project area or in the immediate vicinity; therefore, the project would not physically divide an established community. There would be no impact.

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

The Butte County General Plan's relevant goals and policies are listed above in the Regulatory Setting section. The proposed project is consistent with the listed General Plan goals and policies because, upon project completion, the project site would be reclaimed and revegetated with native plants to ensure the site is suitable for post-mining open space uses. The project would not cause any permanent changes to the existing environment that would preclude future agricultural operations. Further, the proposed project will create jobs in unincorporated Butte County. Consistency with Butte County's zoning ordinance is discussed in Section 4.2, Agriculture Resources, under checklist item (b). This impact would be less than significant.

***c. Conflict with any applicable habitat conservation plan or natural community conservation plan?***

Implementation of the project would not conflict with any applicable habitat conservation or natural community conservation plan, as the BRCP is currently in development and has not yet been adopted. Consequently, checklist item c does not apply to the proposed project and is not considered further in this analysis. There would be no impact.

## 4.11 Mineral Resources

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **b.** Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? | ☐ | ☐ | ☐ | ☒ | ☐ |

## Setting

CEQA does not specifically define mineral resources. Therefore, the definition of mineral resource from the Department of Conservation, State Mining and Geology Board (SMGB) is used for this analysis. The SMGB, in the Guidelines for Classification and Designation of Mineral Lands, defines mineral resources as "a concentration of naturally occurring solid, liquid, or gaseous material in or on the Earth's crust in such form and amount that economic extraction of a commodity from the concentration is currently or potentially feasible." By that definition, the dredged material stockpiled at the project site could be considered a mineral resource.

The project site is not within any designated locally-important mineral resource recovery site. The nearest mineral resource of regional or statewide significance is located approximately two miles south of the project site on land that is also owned by M&T Ranch (County of Butte 2012:10-34–35).

## Impact Discussion

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

The project site contains a known mineral resource—a stockpile of approximately 300,000 tons of alluvial aggregates dredged from the Sacramento River. The proposed project would make this mineral resource available to the region through mining operations. There would be no impact.

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

The proposed project does not involve a delineated locally-important mineral resource recovery site. There would be no impact.

## 4.12 Noise

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **b.** Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **c.** A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **d.** A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **e.** For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **f.** For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? | ☐ | ☐ | ☐ | ☒ | ☐ |

## Setting

### Noise Background

Noise is commonly defined as unwanted sound that annoys or disturbs people and potentially causes an adverse psychological or physiological effect on human health. Because noise is an environmental pollutant that can interfere with human activities, evaluation of noise is necessary when considering the environmental impacts of a project.

Sound is mechanical energy (vibration) transmitted by pressure waves over a medium such as air or water. It is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an ambient (existing) sound level. Although the decibel (dB) scale, a logarithmic scale, is used to quantify sound intensity, it does not accurately describe how sound intensity is perceived by human hearing. The human ear is not equally sensitive to all frequencies in the entire spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive in a process called “A-weighting,” written as “dBA” and referred to as “A-weighted decibels.” Table 4.12-1 summarizes typical A-weighted sound levels for different noise sources.

In general, human sound perception is such that a change in sound level of 1 dB cannot typically be perceived by the human ear, a change of 3 dB is just noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving the sound level.

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level ($L_{eq}$), the minimum and maximum sound levels ($L_{min}$ and $L_{max}$), percentile-exceeded sound levels (such as $L_{10}$, $L_{20}$), the day-night sound level ($L_{dn}$), and the community noise equivalent level (CNEL). Sensitivity to noise increases during the evening and at night because excessive noise interferes with the ability to sleep, and the $L_{dn}$ and CNEL values take this into consideration, as they involve averaging cumulative noise exposure over a 24-hour period. $L_{dn}$ and CNEL values differ by less than 1 dB. As a matter of practice, $L_{dn}$ and CNEL values are considered to be equivalent and are treated as such in this assessment.

For a point source such as a stationary compressor or construction equipment, sound attenuates based on geometry at a rate of 6 dB per doubling of distance. For a line source such as free-flowing traffic on a freeway, sound attenuates at a rate of 3 dB per doubling of distance (California Department of Transportation 2013a). Atmospheric conditions including wind, temperature gradients, and humidity can change how sound propagates over distance and can affect the level of sound received at a given location. The degree to which the ground surface absorbs acoustical energy also affects sound propagation. Sound that travels over an acoustically absorptive surface such as grass attenuates at a greater rate than sound that travels over a hard surface such as pavement. The increased attenuation is typically in the range of 1 to 2 dB per doubling of distance. Barriers such as buildings and topography that block the line of sight between a source and receiver also increase the attenuation of sound over distance.

**Table 4.12-1. Typical A-weighted Sound Levels**

| Common Outdoor Activities | Noise Level (dBA) | Common Indoor Activities |
|---|---|---|
| | 100 | Rock band |
| Jet flyover at 1,000 feet | | |
| | 100 | |
| Gas lawnmower at 3 feet | | |
| | 90 | |
| Diesel truck at 50 feet at 50 mph | | Food blender at 3 feet |
| | 80 | Garbage disposal at 3 feet |
| Noisy urban area, daytime | | |
| Gas lawnmower, 100 feet | 70 | Vacuum cleaner at 10 feet |
| Commercial area | | Normal speech at 3 feet |
| Heavy traffic at 300 feet | 60 | |
| | | Large business office |
| Quiet urban daytime | 50 | Dishwasher in next room |
| Quiet urban nighttime | 40 | Theater, large conference room (background) |
| Quiet suburban nighttime | | |
| | 30 | Library |
| Quiet rural nighttime | | Bedroom at night, concert hall (background) |
| | 20 | |
| | | Broadcast/recording studio |
| | 10 | |
| | 0 | |

Source: California Department of Transportation 2013a.

## Vibration Background

Operation of heavy construction equipment, particularly the types used for pile driving and pavement breaking, create seismic waves that radiate along the surface of the earth and downward into the earth. These surface waves can be felt as ground vibration. Vibration from operation of this equipment can result in effects ranging from annoyance of people to damage of structures. Varying geology and distance will result in different vibration levels containing different frequencies and displacements. In all cases, vibration amplitudes will decrease with increasing distance.

Perceptible ground-borne vibration is generally limited to areas within a few hundred feet of construction or vibration-generating (e.g. mining) activities. As seismic waves travel outward from a vibration source, they excite the particles of rock and soil through which they pass and cause them to oscillate. The actual distance that these particles move is usually only a few ten-thousandths to a few thousandths of an inch. The rate or velocity (in inches per second) at which these particles move is the commonly accepted descriptor of the vibration amplitude, referred to as the peak particle velocity (PPV). Table 4.12-2 summarizes typical vibration levels generated by construction equipment.

**Table 4.12-2. Vibration Source Levels for Demolition and Construction Equipment**

| Equipment | PPV at 25 feet | PPV at 50 feet | PPV at 75 feet | PPV at 100 feet | PPV at 400 feet |
|---|---|---|---|---|---|
| Pile driver (impact) | 1.518 | 0.5367 | 0.2921 | 0.1875 | 0.0237 |
| Pile driver (sonic/vibratory) | 0.734 | 0.2595 | 0.1413 | 0.0918 | 0.0115 |
| Hoe ram | 0.089 | 0.0315 | 0.0171 | 0.0111 | 0.0014 |
| Large bulldozer | 0.089 | 0.0315 | 0.0171 | 0.0111 | 0.0014 |
| Loaded trucks | 0.076 | 0.0269 | 0.0146 | 0.0095 | 0.0012 |
| Jackhammer | 0.035 | 0.0124 | 0.0067 | 0.0044 | 0.0005 |
| Small bulldozer | 0.003 | 0.0011 | 0.0006 | 0.0004 | 0.0033 |

Sources: California Department of Transportation 2013b and Federal Transit Administration 2006.

PPV = peak particle velocity

Vibration amplitude attenuates over distance and is a complex function of how energy is imparted into the ground and the soil conditions through which the vibration is traveling. The following equation can be used to estimate the vibration level at a given distance for typical soil conditions (Federal Transit Administration 2006). $PPV_{ref}$ is the reference PPV from Table 4.12-2.

$$PPV = PPV_{ref} \text{ x } (25/\text{Distance})^{1.5}$$

Tables 4.12-3 and 4.12-4 summarize guidelines developed by California Department of Transportation (Caltrans) for damage and annoyance potential from transient and continuous vibration that is usually associated with construction activity. Equipment or activities typical of continuous vibration include excavation equipment, static-compaction equipment, tracked vehicles, traffic on a highway, vibratory pile drivers, pile-extraction equipment, and vibratory-compaction equipment. Equipment or activities typical of single-impact (transient) or low-rate repeated impact vibration include impact pile drivers, blasting, drop balls, “pogo stick” compactors, and crack-and-seat equipment.

**Table 4.12-3. Guideline Vibration Damage Potential Threshold Criteria**

| | Maximum PPV (in/sec) | |
|---|---|---|
| Structure and Condition | Transient Sources | Continuous/Frequent Intermittent Sources |
| Extremely fragile historic buildings, ruins, ancient monuments | 0.12 | 0.08 |
| Fragile buildings | 0.2 | 0.1 |
| Historic and some old buildings | 0.5 | 0.25 |
| Older residential structures | 0.5 | 0.3 |
| New residential structures | 1.0 | 0.5 |
| Modern industrial/commercial buildings | 2.0 | 0.5 |

Source: California Department of Transportation 2013b.

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory-compaction equipment.

**Table 4.12-4. Guideline Vibration Annoyance Potential Criteria**

| | Maximum PPV (in/sec) | |
|---|---|---|
| Structure and Condition | Transient Sources | Continuous/Frequent Intermittent Sources |
| Barely perceptible | 0.04 | 0.01 |
| Distinctly perceptible | 0.25 | 0.04 |
| Strongly perceptible | 0.9 | 0.10 |
| Severe | 2.0 | 0.4 |

Source: California Department of Transportation 2013b.

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory-compaction equipment.

## Applicable Noise Standards

### *Butte County General Plan*

According to the *Butte County General Plan 2030*, noise is a concern throughout Butte County, but especially in rural areas and in the vicinity of noise-sensitive uses such as residences, schools, and churches. Noise is discussed in the Health and Safety Chapter of the *Butte County General Plan 2030*. Tables HS-2 and HS-3 in the County General Plan (included as Tables 4.12-5 and 4.12-6 below) outline the maximum allowable noise level at residential outdoor activity areas generated by transportation and by non-transportation sources, respectively.

**Table 4.12-5. Maximum Allowable Noise Exposure Transportation Noise Sources**

| | Exterior Noise Level Standard for Outdoor Activity Areas[a] | | Interior Noise Level Standard | |
|---|---|---|---|---|
| Land Use | $L_{dn}$/CNEL, dB | $L_{eq}$, dBA[b] | $L_{dn}$/CNEL, dB | $L_{eq}$, dBA[b] |
| Residential | 60[c] | -- | 45 | -- |
| Transient Lodging | 60[c] | -- | 45 | -- |
| Hospitals, nursing homes | 60[c] | -- | 45 | -- |
| Theaters, auditoriums, music halls | -- | -- | -- | 35 |
| Churches, meeting halls | 60[c] | -- | -- | 40 |
| Office Buildings | -- | -- | -- | 45 |
| Schools, libraries, museums | -- | 70 | -- | 45 |
| Playgrounds, neighborhood parks | -- | 70 | -- | -- |

Source: Table HS-2 from *Butte County General Plan 2030*

Note: -- = not applicable.

[a] Where the location of outdoor activity areas is unknown, the exterior noise-level standard shall be applied to the property line of the receiving land use.

[b] As determined for a typical worst-case hour during periods of use.

[c] Where it is not possible to reduce noise in outdoor activity areas to 60 dB $L_{dn}$/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB $L_{dn}$/CNEL may be allowed, provided that available exterior noise-level reduction measures have been implemented and interior noise levels are in compliance with this table.

**Table 4.12-6. Maximum Allowable Noise Exposure Non-Transportation Noise Sources**

| Noise Level Description | Daytime 7 a.m. – 7 p.m. | | Evening 7 p.m. – 10 p.m. | | Night 10 p.m. – 7 a.m. | |
|---|---|---|---|---|---|---|
| | Urban | Non-Urban | Urban | Non-Urban | Urban | Non-Urban |
| Hourly $L_{eq}$, dB | 55 | 50 | 50 | 45 | 45 | 40 |
| Maximum Level, dB | 70 | 60 | 60 | 55 | 55 | 50 |

Source: Table HS-3 from *Butte County General Plan 2030*

Notes:

1. "Non-Urban designations" are Agriculture, Timber Mountain, Resource Conservation, Foothill Residential and Rural Residential. All other designations are considered "urban designations" for the purposes of regulating noise exposure.

2. Each of the noise levels specified above shall be lowered by 5 dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g. caretaker dwellings).

3. The County can impose noise level standards which are up to 5 dB less than those specified above based upon determination of existing low ambient noise levels in the vicinity of the project site.

4. In urban areas, the exterior noise level standard shall be applied to the property line of the receiving property. In rural areas, the exterior noise level standard shall be applied at a point 100 feet away from the residence. The above standards shall be measured only on property containing a noise sensitive land use. This measurement standard may be amended to provide for measurement at the boundary of a recorded noise easement between all affected property owners and approved by the County.

For residential uses, exterior noise levels of 60 dBA $L_{dn}$/CNEL are allowed for transportation noise sources. For non-transportation noise sources, noise levels of up to 55 dBA $L_{eq}$ are allowed at residential outdoor use areas in urban areas, and noise levels of up to 50 dBA $L_{eq}$ are allowed at residential outdoor use areas in non-urban areas during daytime (7 a.m. to 7 p.m.) hours. As stated in Table 4.12-6 under Note 3, Butte County can impose noise level standards which are up to 5 db less than those specified in the table for non-transportation noise sources based upon determination of existing low ambient noise levels in the vicinity of a project site. Noise levels are further restricted during evening and nighttime hours, as shown in Table 4.12-6.

***Butte County Noise Ordinance***

Chapter 41A, Noise Control, of the Butte County Code of Ordinance applies to the regulation of noise. The purpose of the noise ordinance is to protect the public welfare by limiting unnecessary, excessive, and unreasonable noise. Section 41A-7 specifies the exterior noise limits that apply to land use zones within the County, which are provided in Table 4.12-7.

The Butte County Noise Ordinance provides the County with a means of assessing complaints of alleged noise violations and to address noise level violations from stationary sources. The ordinance includes a list of activities that are exempt from the provisions of the ordinance; however, noise-generating activities associated with the proposed project would not be considered to be exempt from the Noise Ordinance.

Relevant information related to the exterior and interior noise limits set out by the Butte County Noise Ordinance are included below.

**41A-7 - Exterior noise standards.**

a) The following noise standards, unless otherwise specifically indicated in this chapter, shall apply to all noise sensitive exterior areas within Butte County.

**Table 4.12-7. Butte County Exterior Noise Standards**

| | Daytime (7 a.m. to 7 p.m.) | | Evening (7 p.m. to 10 p.m.) | | Nighttime (10 p.m. to 7 a.m.) | |
|---|---|---|---|---|---|---|
| | Designation | | | | | |
| Noise Level Descriptor | Urban | Non-Urban | Urban | Non-Urban | Urban | Non-Urban |
| Hourly Average ($L_{eq}$) | 55 | 50 | 50 | 45 | 45 | 40 |
| Maximum ($L_{max}$) | 70 | 60 | 60 | 55 | 55 | 50 |

b) It is unlawful for any person at any location within the County to create any noise which causes the noise levels on an affected property, when measured in the designated exterior location, to exceed the noise standards specified above.

c) Each of the noise limits specified in subdivision (a) of this section shall be reduced by five (5) dBA for recurring impulsive noise, simple or pure tone noise, or for noises consisting of speech or music.

d) Noise level standards, which are up to five (5) dBA less than those specified above, based upon determination of existing low ambient noise levels in the vicinity of the project site may be imposed.

e) In urban areas, the exterior noise level standard shall be applied to the property line of the receiving property. In non-urban areas, the exterior noise level standard shall be applied at a point one hundred (100) feet away from the residence or at the property line if the residence is closer than one hundred (100) feet. The above standards shall be measured only on property containing a noise sensitive land use.

**41A-8 - Interior noise standards.**

a) The following noise standards, unless otherwise specifically indicated in this chapter, shall apply to all noise sensitive interior areas within Butte County.

**Table 4.12-8. Butte County Interior Noise Standards**

| Noise Level Descriptor | Daytime (7 a.m. to 7 p.m.) | Evening (7 p.m. to 10 p.m.) | Nighttime (10 p.m. to 7 a.m.) |
|---|---|---|---|
| Hourly Average ($L_{eq}$ ) | 45 | 40 | 35 |
| Maximum ($L_{max}$ ) | 60 | 55 | 50 |

b) It is unlawful for any person at any location within the County to create any noise which causes the noise levels on an affected property, when measured in the designated interior noise sensitive area, to exceed the noise standards specified above.

c) Each of the noise limits specified in subdivision (a) of this section shall be reduced by five (5) dBA for recurring impulsive noise, simple or pure tone noise, or for noises consisting of speech or music.

### Existing Noise Environment

The project site is located entirely within Butte County, California and is situated 5 miles southwest of the city of Chico. The project site address is 3964 Chico River Road, Chico, CA 95928 (see Figure 1, Project Location Map). The project site is surrounded by agricultural and undeveloped land, and is located adjacent to the Sacramento River. The nearest offsite residential receptor is located approximately 1 mile north of the project site; other residential receptors are located approximately 1.8 to 2 miles to the east of the project site, east of the wastewater treatment plant located along Chico River Road.

## Impact Discussion

***a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?***

The proposed project would involve the mining or extraction of stockpiled materials on the project site, as well as the processing and transport of materials. The mining and crushing activities (including the onsite use of haul trucks to transport materials to the crushing equipment) are assumed to occur simultaneously and are analyzed under a combined reasonable worst-case noise scenario. The transport of materials to offsite locations after processing is analyzed separately, because noise from the haul trucks would not be limited to the immediate vicinity of the project site (because haul trucks would generate noise along haul routes).

### Mining and Crushing Activities

The proposed project would involve the mining or extraction of stockpiled materials, followed by the use of crushing and screening equipment to process the gravel. As described in Section 1, *Project Information*, the most intensive mining scenario for any given year assumes that operations would occur 250 days per year from 7 a.m. to 4 p.m. Thus, all mining activities would take place during the “daytime” hours described in the County General Plan and in the Noise Ordinance.

As part of operational activities at the site, a hydraulic excavator or front-end loader would be used to load material from the stockpiles into haul trucks to be taken to the portable crushing plant and screening plant. The proposed primary and secondary plants consist of equipment and facilities that crush, screen, wash, sort, and temporarily store processed aggregate materials prior to offsite distribution. Table 4.12-9 shows the proposed equipment list for project operations.

**Table 4.12-9. Onsite Equipment Usage for Aggregate Mining at 100,000 Tons/Year**

| Type of Equipment | Make | Purpose | Usage |
|---|---|---|---|
| Cone Crushing Plant | Powerscreen | Crushing Aggregates | 75% |
| Double Deck Screen Plant | Powerscreen | Aggregate Screening | 75% |
| Loader – 966 M | CAT | Loading Haul Trucks | 50% |
| 725 Off Road Haul Truck | CAT | Haul Material to Plant | 50% |
| Excavator – 330 F | CAT | Feed Processing Plant, Load Haul Truck | 75% |
| Water Truck – 379 | Peterbilt | General Dust Suppression | 25% |

| | | | |
|---|---|---|---|
| Pick-Up – F-150 | Ford | Foreman Transportation | 5 miles/day |
| Truck – F-750 | Ford | Equipment Repair & Service | 2 miles/day |

The loudest equipment proposed for use in processing the stockpiled materials is the portable crushing equipment and the portable screening equipment. Crushing equipment can generate noise levels of up to 87 dBA $L_{max}$ at a distance of 50 feet (LSA 2013), and screening equipment can generate noise levels of up to 83 dBA $L_{max}$ at a distance of 50 feet. According to the project description, both of these equipment pieces would have a utilization rate (the percent of time during the day that they are operating) of 75 percent.

Although crushing and screening equipment is being used on the project site, it is likely that an excavator would be used simultaneously to load material into haul trucks to be taken to the crushing plant, or to load material directly into the crushing plant. An excavator can generate noise levels of up 81 dBA $L_{max}$ at a distance of 50 feet (Federal Highway Administration 2006). This piece of equipment is also proposed to have a 75 percent utilization rate.

In order to conduct a reasonable worst-case analysis of potential noise impacts on nearby offsite noise-sensitive land uses, it is assumed that the three loudest pieces of equipment proposed for project operations (a crusher, screening equipment and an excavator) are all operating simultaneously on the project site. Refer to Table 4.12-10 for the operational noise modeling results for the mining and processing of stockpiled materials on the project site.

**Table 4.12-10. Operational Noise of Mining Crushing and Screening Equipment**

| Source Data: | Utilization Factor | $L_{eq}$ Sound Level (dBA) |
|---|---|---|
| Source 1: Crusher[a] - Sound level (dBA) at 50 feet =87 | 75% | 85.8 |
| Source 2: Screening[b] Equipment - Sound level (dBA) at 50 feet =83 | 75% | 81.8 |
| Source 2: Excavator[c] - Sound level (dBA) at 50 feet =81 | 75% | 77.0 |
| Calculated Data: | | |
| All Sources Combined - $L_{max}$ sound level (dBA) at 50 feet = | | 89 |
| All Sources Combined - $L_{eq}$ sound level (dBA) at 50 feet = | | 88 |

| Distance Between Source and Receiver (feet) | Geometric Attenuation (dB) | Ground Effect Attenuation (dB) | Calculated $L_{max}$ Sound Level (dBA) | Calculated $L_{eq}$ Sound Level (dBA) |
|---|---|---|---|---|
| 50 | 0 | 0.0 | 89 | 88 |
| 100 | -6 | -1.5 | 82 | 80 |
| 200 | -12 | -3.0 | 74 | 73 |
| 300 | -16 | -3.9 | 70 | 68 |
| 400 | -18 | -4.5 | 67 | 65 |
| 500 | -20 | -5.0 | 64 | 63 |
| 600 | -22 | -5.4 | 62 | 61 |
| 700 | -23 | -5.7 | 61 | 59 |

| Distance Between Source and Receiver (feet) | Geometric Attenuation (dB) | Ground Effect Attenuation (dB) | Calculated $L_{max}$ Sound Level (dBA) | Calculated $L_{eq}$ Sound Level (dBA) |
|---|---|---|---|---|
| 800 | -24 | -6.0 | 59 | 58 |
| 900 | -25 | -6.3 | 58 | 57 |
| 1000 | -26 | -6.5 | 57 | 55 |
| 1100 | -27 | -6.7 | 56 | 54 |
| 1200 | -28 | -6.9 | 55 | 53 |
| 1500 | -30 | -7.4 | 52 | 51 |
| 1800 | -31 | -7.8 | 50 | 49 |
| 2000 | -32 | -8.0 | 49 | 48 |
| 2500 | -34 | -8.5 | 47 | 45 |
| 3000 | -36 | -8.9 | 45 | 43 |
| **5700** | **-41** | **-10.3** | **38** | **37** |

Notes:

Geometric attenuation based on 6 dB per doubling of distance.

Ground affect attenuation based on 1.5 dB per doubling of distance

This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.

[a] Crusher Noise Source: LSA 2013.

[b] Screening Equipment Noise Source: Ldn Consulting 2011.

[c] Excavator Noise Source: Federal Highway Administration 2006.

The nearest residential building is located on the project site, 1,100 feet away from the closest part of the project site where processing (crushing/screening) operations could be implemented. However, this residence is located on the same parcel as the project site, belongs to the project proponent, and is occupied by a caretaker of the property. As shown in note 2 of Table 4.12-6 (or Table HS-3 from the Butte County General Plan 2030), the “noise level standards [for non-transportation noise sources] do not apply to residential units established in conjunction with industrial or commercial uses (e.g. caretaker dwellings).” Consequently, this residence is not considered to be a noise-sensitive receptor for the purposes of this analysis.

The next closest receiver is more than 1 mile (more than 5,700 feet) north of the project site. At this distance, noise from project operational equipment would be approximately 37 dBA $L_{eq}$ assuming an attenuation rate of 7.5 dB per doubling of distance (based on the project site having acoustically absorptive ground, as noted in the footnotes of Table 4.12-10). This predicted noise level would be below the maximum allowable noise exposure for non-transportation noise sources of 50 dBA $L_{eq}$ threshold (shown in Table 4.12-6) in non-urban areas. If Butte County exercises its right to impose noise level standards for non-transportation noise sources which are up to 5 db less than those specified in Table 4.12-6, the threshold for non-transportation noise sources in non-urban areas would be 45 dBA $L_{eq}$. The predicted noise levels from operational equipment, at approximately 37 dBA $L_{eq}$, would still be below this lower threshold of 45 dBA $L_{eq}$. Operational noise impacts from mining and crushing activities related to the exposure of persons to or generation of noise levels in excess of standards would be less than significant.

### Offsite Haul Truck Activity

As shown in Table 4.12-5, residential land uses are considered compatible with transportation noise sources of up to 60 $L_{dn}$. For the purposes of this assessment, trucks traveling on public roads or on onsite haul routes are considered to result in a significant noise impact if resultant noise from truck activity is predicted to exceed 60 $L_{dn}$ at residences.

As discussed in Section 1, *Project Information*, mining operations would result in 18 to 27 haul truck trips (or an average of 2 to 3 trips per hour) of aggregate to offsite locations per day. Likely haul routes are shown in Figure 4. Based on locations of recent and predicted construction activity within a 30-mile radius of the project site, it is anticipated that the majority of aggregate produced by the proposed project would be used along the State Route 99 corridor in or near Chico.

It is estimated that approximately 70 percent of haul trucks will use Chico River Road, with 20 percent of the total haul trucks splitting off to travel northbound on Highway 32 and 50 percent of the total haul trucks continuing straight to access Highway 99 (Figure 4). Also, an estimated 30 percent of the total haul trucks are expected to head south on River Road to access Ord Ferry Road. At the intersection of Ord Ferry Road and River Road, half of those trucks (15 percent of the total) are expected to turn left and the other half would be expected to turn right (Figure 4).

A reasonable worst case assumption is that the maximum of 27 truck trips anticipated in a given day are all along the more populated of the potential routes (Chico River Road toward SR 32 and SR 99). Speed limits along this route vary, but truck speeds could range from 30 to 45 miles per hour (mph). Under these conditions, the predicted sound level at a distance of 50 feet would be in the range of 48 to 50 $L_{dn}$, depending on the speed of the trucks. Because this predicted sound level is less than 60 $L_{dn}$, the exposure of residential uses to haul truck noise is considered to be less than significant**.**

### Traffic Noise from Worker Trips

In addition to the onsite equipment and offsite haul trucks, mining operations would require three worker vehicle trips per day to and from the project site, and it is anticipated that an average of one delivery or service vehicle visit from offsite per day would occur per day. These six to eight one-way trips spread out over an 8-hour workday would have no meaningful effect on noise. This impact would be less than significant.

***b. Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?***

The equipment associated with the proposed project (e.g., a cone crushing plant, a screening plant, an excavator) may generate vibration in the immediate vicinity of the equipment during operation. However, this type of equipment is not expected to generate perceptible vibration beyond about 100 feet from the equipment. Because the nearest offsite residence is located more than 5,000 feet away, mining activities would not expose persons to or generate excessive ground borne vibration. Impacts related to vibration would be less than significant**.**

***c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?***

As discussed above, operational noise sources associated with the proposed project would include onsite equipment used for mining and crushing activities. The nearest noise-sensitive receptor (an offsite residence) is located more than 1 mile north of the project site. At this distance, noise from project operational equipment would be approximately 37 dBA $L_{eq}$. Assuming constant operation during the working hours of 7 a.m. to 4 p.m., this corresponds to a daily noise level of 33 $L_{dn}$.

Ambient noise levels in rural areas are typically in the range of 40 to 50 dBA $L_{dn}$ (Hoover & Keith 2000). Noise adds logarithmically, so a doubling of actual sound energy does not double the decibel level, but instead results in a 3 dB increase in noise. Operational noise from project equipment at the nearest sensitive receptor, which would be approximately 33 dBA $L_{dn}$, would, therefore, not be expected to increase noise be more than about 1 dB (33 $L_{dn}$ additional noise + 40 $L_{dn}$ ambient noise = 41 $L_{dn}$ combined noise). This small increase in noise from proposed mining and crushing activities is not considered to be a substantial permanent increase in ambient noise levels.

As, also discussed under Impact a, project-related haul-truck noise would not result in significant noise levels at nearby residential land uses, and the approximately six to eight one-way worker trips per day spread out over an 8-hour work day would have no meaningful effect on noise in the project vicinity.

Project impacts related to a permanent increase in ambient noise levels would be less than significant**.**

***d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?***

The project would not involve the generation of any temporary noise, because there would be no short-term temporary construction associated with the proposed project. Consequently, there would be no impact related to a substantial temporary or periodic increase in ambient noise levels.

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

There are no public airports located within 2 miles of the project site. The closest public airport is the Chico Municipal Airport, which is located approximately 7.3 miles northeast of the proposed project site. There are approximately 115 aircraft based at this airport, and there are an average of 93 take-offs and landings per day. At this distance from the airport, no people residing or working in the project site would be exposed to excessive aircraft noise. There would be no impact related to noise from public use airports.

***f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?***

There are no private airstrips located within the vicinity of the project site. The operational private airstrip located closest to the proposed project site is the Ranchaero Airport, which is located approximately 3.7 miles to the east of the project site. This is a small private airport, with approximately 34 aircraft based at this field, and with an average of 96 take-offs and landings per week. At this distance from the air field, no people residing or working in the project site would be exposed to excessive aircraft noise. There would be no impact related to noise from private air strips.

## 4.13 Population and Housing

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **b.** Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **c.** Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ☒ | ☐ |

## Setting

The project site is located in a rural agricultural area of unincorporated Butte County. Residences are sparsely scattered. As described in section 4.12, "Noise," the nearest residential building is the caretaker residence belonging to the project proponent, located 1,100 feet away from the project site. The next closest home is over a mile (over 5,700 feet) north of the project site.

## Impact Discussion

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

The project proposes mining an existing stockpile of aggregate; no new homes or infrastructure expansions are involved. The mining operation would create approximately three jobs; however, this amount is not considered substantial. This impact would be less than significant.

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

Implementing the proposed project would not displace any homes because there are no homes on the project site or immediately adjacent to the project site. There would be no impact.

***c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?***

Implementing the proposed project would not result in the displacement of any people because people do not currently occupy the project site. There would be no impact.

## 4.14 Public Services

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Would the project result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: | | | | | |
| **1.** Fire protection? | ☐ | ☒ | ☐ | ☐ | ☐ |
| **2.** Police Protection? | ☐ | ☒ | ☐ | ☐ | ☐ |
| **3.** Schools? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **4.** Parks? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **5.** Other public services? | ☐ | ☒ | ☐ | ☐ | ☐ |

## Setting

No schools or parks are located within the project area. The nearest school, Rosedale Elementary School, is approximately 6 miles east of the project site. The nearest park is the Bidwell-Sacramento River State Park, located across Big Chico Creek from the project site. For the purposes of this analysis, relevant public services are therefore limited to fire protection, police protection, and emergency medical assistance. Police, fire, and ambulance services in the vicinity of the project area are provided by Butte and Glenn counties.

## Impact Discussion

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

1. ***Fire protection?***
2. ***Police Protection?***
3. ***Schools?***
4. ***Parks?***
5. ***Other public services?***

Public services in the project area consist of law enforcement, fire protection, and emergency medical assistance, which are provided by Butte and Glenn counties. No schools or parks are located in or near the project area. The proposed project consists of gravel mining activities, which would not affect emergency access or result in any loss of service ratios, response times, or other performance objectives. No road closures would be necessary for operation of the proposed project and no substantial disruptions of physical access, emergency services, or utility services to adjacent landowners are expected after implementation of Mitigation Measure TRANS-1: Prepare and Implement a Traffic Control Plan, as described in Section 4.16. This impact would be less than significant with implementation of Mitigation Measure TRANS-1.

## 4.15 Recreation

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **b.** Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | ☐ | ☐ | ☐ | ☒ | ☐ |

## Setting

The park nearest to the project site is the Bidwell-Sacramento River State Park, located on the opposite bank of Big Chico Creek from the project site.

## Impact Discussion

***a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?***

The proposed project is a mining project; it would not increase the use of existing recreational facilities. There would be no impact.

***b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?***

The proposed project is a mining project; it would not include or require construction or expansion of recreational facilities. There would be no impact.

## 4.16 Transportation/Traffic

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | ☐ | ☒ | ☐ | ☐ | ☐ |
| **b.** Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | ☐ | ☒ | ☐ | ☐ | ☐ |
| **c.** Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **d.** Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | ☐ | ☒ | ☐ | ☐ | ☐ |
| **e.** Result in inadequate emergency access? | ☐ | ☒ | ☐ | ☐ | ☐ |
| **f.** Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities | ☐ | ☒ | ☐ | ☐ | ☐ |

## Introduction

This section analyzes the project's potential impacts related to traffic and transportation. It describes existing conditions in the transportation study area, summarizes local regulatory frameworks, and analyzes the potential for the project to impact these resources. The transportation study area includes the project site and the roadways in Butte and Glenn Counties that the proposed project would use to transport of aggregate. These roadways have varying levels of service (LOS), which is a measure of congestion by which the quality of service on roads or intersections is determined and classified. Table 4.16-1 provides definitions for each level of service used in the transportation study area.

**Table 4.16-1. Peak Hour Level of Service (LOS) Descriptions**

| Los | Traffic Flow Quality |
|---|---|
| A | Free flow. Individual users are virtually unaffected by others in the traffic stream. Control delay at signalized intersections is minimal. |
| B | Stable flow, but the presence of other users in the traffic stream begins to be noticeable. The ability to maneuver within the traffic stream is only slightly restricted, and control delays at signalized intersections are not significant. |
| C | Stable flow, but the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream. |
| D | High-density, but stable flow. |
| E | Operating conditions at or near capacity level. |
| F | Forced or breakdown flow. |
| Source: Highway Capacity Manual 2000. Transportation Research Board, Washington D.C. | |

## Environmental Setting

Regional access to and from the project site would be provided by State Route (SR) 99, Interstate 5 (I-5), SR 45, SR 32, Chico River Road, River Road, and Ord Ferry Road. Figure 4 shows likely haul routes of the proposed project. SR 99 is a north-south highway that runs through the cities of Chico, Biggs, and Gridley. In Chico, SR 99 is a four-lane freeway that currently operates at LOS D (PMC 2010: 4.5-1, 4.5-16). I-5, which serves Glenn County, is a principal arterial roadway and operates at LOS B. SR 45 is a two-lane minor arterial highway located west of the Sacramento River. It is the major north-south connection east of I-5 in Glenn County. SR 45 in Glenn County serves less than 2,500 vehicles per day, and SR 45 operates at LOS B (QUAD Consultants, 1993: 3-22). SR 32 is a key route serving Butte County, connecting the Chico area to I-5 in Glenn County and to Lassen County. In the city of Chico, SR 32 is generally a two-lane roadway, except where it becomes a one-way couplet, where each direction has two lanes. This is the case with a 2-mile section through downtown Chico that separates into a one-way couplet, then reverts to an undivided road designated as Nord Avenue until it exits the City of Chico to the northwest. A portion of SR 32 (between East Avenue and West 1st Street) operates at unacceptable levels (LOS F) during the PM peak hour (County of Butte 2010: 4.13-23). The California Department of Transportation (Caltrans) has the primary responsibility for the operation and maintenance of state routes.

Additional access roads including Chico River Road, River Road, and Ord Ferry Road are two-lane facilities with narrow shoulders, located in a rural agricultural area with light traffic. Primary local access to the project site is provided via River Road at the north end of the project site, which intersects with a private road running southward along the eastern edge of the site atop a non-federal levee. This road would be used for employee and haul truck access during mining operations. Because of the largely rural nature of the area, these local roadways generally operate at a free-flowing LOS during peak hours.

Bicycle and pedestrian travel within and near the project site is limited primarily because of the rural, low-density character of the area. The lack of bicycle and pedestrian facilities also contributes to the limited amount of bicycle and pedestrian travel on county roads. However, because of the lack of bicycle and pedestrian facilities, the limited number of bicyclists and pedestrians use the existing road shoulders or, if unavailable, the existing vehicle travel lanes, with pedestrians often using the unimproved right-of-way. There are no existing bikeways within the project site or along any of the proposed project's haul truck routes through unincorporated Butte County (Butte County Public Works 2011: 29). The proposed project's haul route through the city of Chico would be on roads that have Class II bicycle lanes or Class III bicycle routes (City of Chico 2011: 4-13).

## Regulatory Setting

The following section summarizes applicable regulatory information that applies to traffic and circulation in the vicinity of the project. There are no federal traffic regulations applicable to the proposed project. Transportation analysis in the transportation study area is guided by policies and standards set by local jurisdictions. BCAG is the designated congestion management agency for this region but does not have a congestion management program applicable to the proposed project.

### Butte County General Plan

The Circulation Element of the *Butte County General Plan 2030* is concerned with the safe and efficient movement of people and goods, and sets forth goals and policies describing the overall mobility program for the county (County of Butte, 2012). The following goal and policies are applicable to the proposed project.

**Goal CIR-6:** Support a balanced and integrated road and highway network that maximizes the mobility of people and goods in a safe, efficient manner.

**Policy CIR-P6.1:** The LOS for County-maintained roads within the unincorporated areas of the county but outside municipalities' sphere of influences (SOI) shall be LOS C or better during the PM peak hour. Within a municipalities' SOI, the LOS shall meet the municipality's LOS policy.

**Policy CIR-P6.2:** The LOS on State Highways should at least match the concept LOS for the facility, as defined by Caltrans.

Caltrans has set a concept LOS of E for the entirety of SR 32 and SR 99 within Butte County (County of Butte 2010: 4.13-3). Butte County LOS thresholds are provided in Table 4.16-2, and are the same as the Highway Capacity Manual 2000 PM Peak Hour Roadway Segment LOS thresholds.

**Table 4.16-2. Peak Hour LOS Volume Thresholds by Facility Type**

| Facility Type | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| Minor 2-Lane Highway | 0-90 | 91-200 | 201-680 | 681-1,410 | 1,411-1,740 | >1,740 |
| Major 2-Lane Highway/Expressway | 0-120 | 121-290 | 291-790 | 791-1,600 | 1,601-2,050 | >2,050 |
| 4-Lane, Multi-Lane Highway/Expressway | 0-1,070 | 1,071-1,760 | 1,761-2,530 | 2,531-3,280 | 3,281-3,650 | >3,650 |
| 2-Lane Arterial | — | — | 0-970 | 971-1,760 | 1,761-1,870 | >1,870 |
| 4-Lane Arterial, Divided | — | — | 0-1,750 | 1,751-2,740 | 2,741-2,890 | >2,890 |
| 4-Lane Arterial, Divided | — | — | 0-1,920 | 1,921-3,540 | 3,541-3,740 | >3,740 |
| 6-Lane Arterial, Divided | — | — | 0-2,710 | 2,711-5,320 | 5,321-5,600 | >5,600 |
| 3-Lane Arterial, 1-Way Roadway | — | — | 0-1,310 | 1,311-2,060 | 2,061-2,170 | >2,170 |
| 2-Lane Freeway | 0-1,110 | 1,111-2,010 | 2,011-2,880 | 2,881-3,570 | 3,571-4,010 | >4,010 |
| 2-Lane Freeway + Auxiliary Lane | 0-1,410 | 1,411-2,550 | 2,551-3,640 | 3,641-4,490 | 4,491-5,035 | >5,035 |
| 3-Lane Freeway | 0-1,700 | 1,701-3,080 | 3,081-4,400 | 4,401-5,410 | 5,411-6,060 | >6,060 |
| 3-Lane Freeway + Auxiliary Lane | 0-2,010 | 2,011-3,640 | 3,641-5,180 | 5,181-6,350 | 6,351-7,100 | >7,100 |
| 4-Lane Freeway | 0-2,320 | 2,321-4,200 | 4,201-5,950 | 5,951-7,280 | 7,281-8,140 | >8,140 |
| Major 2-Lane Collector | — | — | 0-550 | 551-1,180 | 1,181-1,520 | >1,520 |

Source: Highway Capacity Manual 2000. Transportation Research, Washington, D.C.

## Glenn County General Plan

The *Glenn County General Plan* provides goals and policies that emphasize the provision of a safe and efficient transportation system (Glenn County 1993). The following goal and policies are applicable to the proposed project.

**Goal CDG-5:** Development and maintenance of an efficient and effective road system.

**CDP-56:** Establish a minimum level of service for local roadways.

**CDP-57:** Determine the impact proposed development will have on the local road system and ensure that the established level of service is maintained.

Glenn County maintains that an LOS C is the standard for all road segments and signalized intersections within the county. The county grants exceptions to this standard where LOS D or E is forecast only pending demonstration that topography or other environmental impacts make mitigation measures impractical (QUAD Consultants, 1993: 6-29).

### City of Chico General Plan

The *Chico 2030 General Plan* Circulation Element focuses on meeting and enhancing community needs for safe and convenient travel through a multimodal transportation network (City of Chico 2011). The following goals and policies are applicable to this analysis.

**Goal CIRC-1:** Provide a comprehensive multimodal circulation system that serves the build-out of the Land use Diagram and provides for the safe and effective movement of people and goods.

**Policy CIRC-1.4 (Level of Service Standards):** Until a Multimodal Level of Service methodology is adopted by the City, maintain LOS D or better for roadways and intersections at the peak PM period, except as specified below, and exceptions to the LOS standards may be considered by the City Council where reducing the level of service would result in a clear public benefit.

- LOS E is acceptable for City streets and intersections under the following circumstances:
  - Downtown streets.
  - Arterials served by scheduled transit.
  - Arterials not served by scheduled transit, if bicycle and pedestrian facilities are provided within or adjacent to the roadway.
- Utilize Caltrans standards for Caltrans' facilities.
- There are no LOS standards for private roads.

**Goal CIRC-2:** Enhance and maintain mobility with a complete streets network for all modes of travel.

The City of Chico PM peak hour roadway segment LOS thresholds are the same as those identified above for Butte County in Table 4.16-2.

## Impact Discussion

Traffic and circulation impacts associated with the proposed project activities would pertain to the transportation of mined and processed aggregate from the project site, once it has been purchased by a customer. Equipment utilized for onsite processing and transport would have minimal impacts on local traffic patterns because activities would be limited to the project site, on private rural, agricultural roads with light traffic. Final reclamation activities including restoration of remaining levee slopes and final grading would be limited to the project site. The road on top of the levee would remain in place to provide landowner and levee inspection access. Therefore, this analysis is concerned with operations involving the transportation of aggregate off the project site.

The analysis of traffic and circulation impacts is based on a review of applicable management plans, road conditions in and near the project site, and an evaluation of the proposed project's potential to affect traffic or circulation on nearby roads and highways. Potential impacts of the proposed project related to traffic and transportation are discussed in the context of State CEQA Guidelines Appendix G checklist items. For purposes of this analysis, the proposed project would be considered to have a significant impact under CEQA on traffic and circulation if it would contribute to any one of the following conditions within the transportation study area.

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

Industry data and trucking costs presume that on average, aggregate would be hauled approximately 15–20 miles offsite for use. The likely haul routes can be referenced in Figure 4. The primary access routes that would be utilized by the proposed project during mining operations are designated state and local truck routes (PMC 2010: 4.5-27). However, local traffic patterns could be negatively affected by haul truck activity. Implementation of Mitigation Measure TRANS-1 would ensure that even with the low volume of additional haul truck traffic, there will be controls in place to avoid conflicts between haul trucks and other roadway users. This impact would be less than significant with mitigation.

**Mitigation Measure TRANS-1: Prepare and Implement a Traffic Control Plan**

To avoid any potential delays or safety issues on haul routes, and to minimize impacts on traffic and circulation, a traffic control plan will be developed and implemented. M&T Ranch will work with the mining contractor and coordinate with Caltrans and/or county public works or planning departments to develop a traffic control plan prior to initiating work. The traffic control plan will include specific measures to manage traffic in the project vicinity and along haul routes. The traffic control plan will be submitted to the appropriate transportation agency for review and approval prior to the start of mining activities. The traffic control plan will include measures to address the following:

- Prior to implementation of mining activities, the contractor will verify that all roads, bridges, culverts, and other infrastructure along the haul routes can support expected vehicle loads.
- Prior to implementation of mining activities, the contractor will clear vegetation around the intersection of the project site driveway and River Road to improve visibility of the driveway to vehicles traveling southeast on River Road.
- Project parking will be restricted to the designated staging areas.
- Identify haul routes, locations of signage, locations of flaggers, approved permits, documentation of coordination with local and state agencies, and locations of potential delays to vehicle, bicycle, and pedestrian traffic.
  - Warning signs will be posted in accordance with local standards or those set forth in the Manual on Uniform Traffic Control Devices for Streets and Highways (Federal Highway Administration 2009) in advance of the project site and at any intersection that provides access to the project site.
  - Haul trucks and other project-related vehicles will follow established truck routes to the greatest extent practicable. Written notification will be provided to appropriate contractors regarding appropriate routes to and from the project site, and weight and speed limits for local roads used to access the project site.
- The mining contractor will maintain travel traffic on all roads adjacent to the project site and on all affected public roads during the project period. Measures for the protection and diversion of traffic, including the provision of watch persons and flag persons, erection of barricades, placing of lights around and in front of equipment and work areas, and the erection and maintenance of adequate warning, danger, and direction signs, will be as required by state and local authorities having jurisdiction. Traffic controls, when necessary, on major roads and collectors will include flag persons wearing bright orange or red vests and using “stop/slow” paddles to direct drivers.

- During peak periods, project-generated traffic will avoid roadway segments or intersections that are at, or approaching, an LOS that exceeds local standards, either by traveling different routes or by traveling at non-peak times.
- Rock, dirt, and other materials will be prevented from being accidentally dropped from trucks traveling on highways to and from the project site.
- To the extent practicable, the number of vehicles (mining-related and other) on the roadways adjacent to the project site will be reduced.
- To the extent practicable, the interaction between haul trucks and other vehicles will be reduced.
- The traveling public shall be protected from damage to person and property. The project's traffic on roads selected for hauling shall interfere as little as possible with public traffic.
- Public safety will be promoted through actions aimed at driver and road safety.
- Access to public transit will be maintained, and movement of public transit vehicles will not be impeded as a result of construction activities.
- Through access for emergency vehicles will be provided at all times.
- Access will be maintained for driveways and private roads.

***b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?***

Mining operations to remove the stockpile of alluvial aggregates from the project site would result in temporary increases in traffic. The project could require up to 4,585 haul truck trips per year to deliver mined aggregate after purchase, resulting in a maximum of 27 truck trips per day. Likely haul routes are based on the locations of recent and predicted construction activity within a 30-mile radius of the project site. It is anticipated that the majority of aggregate produced by the project would be used along the Highway 99 corridor in or near Chico. The likely haul routes can be referenced in Figure 4.

The total number of haul truck and delivery vehicle trips per day on SR 99, SR 45, Chico River Road, and I-5, in combination with the number of worker vehicle trips per day, would not be sufficient to degrade the current LOS standard on these facilities. However, the portion of SR 32 between East Avenue and West 1$^{st}$ Street is already operating at an unacceptable level (LOS F) during the PM peak hour. Any additional vehicle trips on this stretch of road during peak hours would exacerbate the problem. Analyzed in the context of likely haul routes, this road segment would experience an increase of around 5 vehicle trips per day. Implementation of Mitigation Measure TRANS-1, which requires project-related haul trucks to avoid roadway segments operating at unacceptable levels by traveling different routes or by traveling at non-peak times, would ensure that this impact would be less than significant.

***c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?***

The proposed project would not affect air traffic patterns or cause any air traffic safety risks because it is not located within close proximity of a public airport or private airstrip (see Section 4.8, *Hazards and Hazardous Materials*, Impacts e and f) and it does not involve the construction or operation of tall structures. There would be no impact.

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

The proposed project does not entail new design features or incompatible uses that would result in hazardous traffic conditions. However, the driveway that to be used by personal vehicles and haul trucks to access the project site from River Road is located southeast of a curve in the road. For traffic approaching the project site from the northwest, the intersection of the driveway with River Road is not clearly visible until the vehicle is approximately 400 feet away. Implementation of Mitigation Measure TRANS-1, which would require vegetation clearing around the driveway intersection and erection of warning signs, would ensure that this impact is less than significant.

***e. Result in inadequate emergency access?***

There would be no lane closures involved in the proposed project that would constrict emergency access. Implementation of Mitigation Measure TRANS-1 would ensure that this impact is less than significant.

***f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?***

Implementation of the proposed project would not conflict with any adopted policies, plans, or programs supporting alternative transportation. The rural roads surrounding the project site do not have existing bikeways, but some bicycle use of River Road does occur. Implementation of Mitigation Measure TRANS-1, which would require vegetation clearing around the project site’s driveway intersection with River Road and erection of warning signs, would ensure that safety for bicyclists approaching the intersection on River Road is maintained. This impact would be less than significant.

## 4.17 Utilities and Service Systems

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **b.** Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **c.** Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **d.** Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **e.** Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **f.** Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **g.** Comply with federal, state, and local statutes, and regulations related to solid waste? | ☐ | ☐ | ☐ | ☒ | ☐ |

## Setting

The proposed project would occur in a small, localized area that currently does not provide and is not serviced by utilities (e.g., water or wastewater treatment plants, electricity, or natural gas).

## Impact Discussion

***a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?***

The proposed project consists of a small temporary mining operation. It does not involve the construction of any buildings, nor would it generate any wastewater that would need to be sent to treatment facilities. There would be no impact.

***b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?***

As described under question (a.) above, the proposed project does not involve the construction of any buildings, nor would it generate any wastewater that would need to be sent to treatment facilities. Additionally, the project would not require any treated water. There would be no impact.

***c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?***

The proposed project would not require the construction of any new storm water drainage facilities. Water used in the washing and processing of aggregates on-site would percolate into the ground via a series of temporary sediment ponds. There would be no impact.

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

The proposed project would require water supplies for dust suppression and for the washing and processing of aggregates. This water would be supplied by the permanent pumping station located in the Sacramento River at the south end of the project site and would not cause the pumping plant diversions to increase above permitted capacities. There would be no impact.

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

As described under question (a.) above, the proposed project does not involve the construction of any buildings, nor would it generate any wastewater that would need to be sent to treatment facilities. There would be no impact.

***f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?***

No waste beyond worker-generated domestic refuse is anticipated to be generated by the proposed project. As described in Section 1.0, domestic refuse will be collected in approved trash bins and removed from the project site by the operator. This impact would be less than significant.

***g. Comply with federal, state, and local statutes, and regulations related to solid waste?***

The proposed project would comply with statues and regulations related to solid waste. Waste generated by the proposed project would consist only of domestic refuse, which would be collected in approved trash bins and removed from the project site by the operator. There would be no impact.

## 4.18 Energy

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? | ☐ | ☐ | ☐ | ☒ | ☐ |
| **b.** Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? | ☐ | ☐ | ☐ | ☒ | ☐ |

## Setting

### Existing Conditions

This section discusses the existing conditions related to energy use within Butte County and by the proposed project.

The sale of gasoline and diesel in Butte County, and therefore the use of these two energy sources, fluctuate over time. Between 2010 and 2017, annual sales in the county ranged from approximately 10 to 13 million gallons of diesel and approximately 78 million gallons to 87 million gallons of gasoline (California Energy Commission. 2019). Overall, between 2010 and 2017, Butte County consumed approximately 5 trillion BTUs of energy, or approximately 1,500 gigawatt hours of energy (California Energy Commission, 2016).

The proposed project would consume energy primarily through construction activities resulting from the use of gasoline and diesel for off road equipment, trucks, and work traffic. Construction energy consumption would vary depending on the level of activities throughout the mining period; however, overall usage associated with construction activities is expected to be approximately 87,734 total gallons of fuel or 11,352 British Thermal Units.

### Regulatory Setting

This section identifies regulations applicable to renewable energy use or energy efficiency. Please also see Sections 4.3, *Air Quality*, and 4.7, *Greenhouse Gas Emissions*, for more information regarding the regulations controlling and governing emissions.

In 2002, California established its Renewables Portfolio Standard (RPS) Program, with the goal of increasing the percentage of renewable energy in the state's electricity mix to 20 percent of retail sales by 2010. In 2006, California's 20 percent by 2010 RPS goal was codified under Senate Bill 107 (SB 107). Under the provisions of SB 107, investor-owned utilities were required to generate 20 percent of their retail electricity using qualified renewable energy technologies by the end of 2010. In 2008, Governor’s Executive Order S-14-08 was signed into law requiring California retail sellers of electricity serve 33 percent of their load with renewable energy by 2020.

Senate Bill 350 (SB 350) was approved by the California legislature in September 2015 and signed by Governor Brown in October 2015. Its key provisions include: (1) a RPS of 50% by 2030; and (2) a doubling of energy efficiency (electrical and natural gas) by 2030, including improvements to the efficiency of existing buildings. These mandates will be implemented by future actions of CPUC and CEC. Senate Bill 100 was approved by the California legislature in August 2018 and signed by

Governor Brown in September 2018. Its key provisions were to raise the RPS requirement set by SB 350 from 50 to 60% by 2030, and to create a new policy to meet all of the state's retail electricity supply with a mix of RPS-eligible and zero-carbon resources by December 31, 2045, for a total of 100% clean energy

## Impact Discussion

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

The proposed project consists of a small temporary mining operation. The proposed project would consume approximately 87,000 gallons of fuel or 11,000 BTUs over 20 years. This amount of fuel consumption is very small compared to the overall sale of gasoline and diesel in the county (described above). It is less than 0.5 percent of the total amount of diesel sold in the county and 0.1 percent of the total amount of gasoline sold in the county. Furthermore, the energy consumed would be negligible (approximately 0) percent of total energy consumption (BTUs) in the entire county. Relative to other states and the country as whole, construction projects in California generally use more energy-efficient equipment in order to meet state and local goals for criteria air pollutant and greenhouse gas emissions reductions, as described in Section 4.3, *Air Quality*, for idling limit regulations and state tailpipe emissions standards. Since the overall consumption is negligible when considered within the context of the County’s consumption of energy, and because construction of the proposed project would not require the use of energy in appreciable quantities, the proposed project would not directly or indirectly require the construction of new energy generation or supply facilities. Therefore, a potentially significant environmental impact due to the wasteful, inefficient, or unnecessary consumption of energy resources would not occur. The impact would not occur and no mitigation is required.

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

As described above for question (a), the proposed project would not directly require the construction of new energy generation or supply facilities, because construction would not require the use of energy in appreciable quantities. The proposed project is predominantly comprised of construction-type activities and does not entail new land uses that would require a connection to existing energy infrastructure. Furthermore, the proposed project does not involve investor-owned utilities or retail sellers of electricity. Consequently, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The impact would not occur and no mitigation is required.

## 4.19 Mandatory Findings of Significance

| Would the proposal: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact | Reviewed Under Previous Document |
|---|---|---|---|---|---|
| **a.** Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **b.** Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects and the effects of probable future projects)? | ☐ | ☐ | ☒ | ☐ | ☐ |
| **c.** Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | ☐ | ☐ | ☒ | ☐ | ☐ |

## Impact Discussion

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

As described in Section 4.4, *Biological Resources*, there are no known sensitive or special-status biological resources on the project site because the project site is primarily covered by gravel that has already been dredged from the Sacramento River. There are known sensitive or special-status biological resources west of project site along the riparian corridor and Sacramento River and one to the north of the project site along the existing road. However, as described in Section 4.4, impacts on known sensitive or special-status species can be fully mitigated or avoided through the implementation of measures identified in that section. As described in Section 4.5, *Cultural Resources*, there are no known cultural resources within the project site. However, if any previously unidentified cultural resources are uncovered during mining operations, implementation of the identified mitigation measures would ensure the resources are properly assessed. Consequently, the proposed project does not have the potential to eliminate important examples of the major periods of California history or pre-history. Therefore, the proposed project does not have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or pre-history.

***b. Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in***

***connection with the effects of past projects, the effects of other current projects and the effects of probable future projects)?***

As described in Section 1.0, *Project Information*, the land uses surrounding the project site are predominantly dominated by intensive commercial agriculture, with some wetlands, riparian habitat, and valley oak woodland to the west of the project site and a road to the north of the project site. It is expected M&T Ranch would continue to cultivate the existing agricultural lands as they are currently designated for agricultural use.

A probable future project that could be implemented near the project site is the dredging project described in the Environmental Assessment/Initial Study for the M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project (Short-Term Project), discussed in Section 1.0 of this document. Activities associated with the Short-Term Project will take place at and adjacent to the project site for the proposed project described in this Initial Study. However, because mining activities associated with this project would be suspended during dredging operations, impacts would not overlap temporally.

Another probable future project is the M&T/Llano Seco Long-Term Protection Project (Long-Term Project), which could result in impacts on various resources in the future; however, the construction and operation of that project is expected to only minimally overlap with mining operations on the project site.

As described throughout Sections 4.1 through 4.17 of this Initial Study, the proposed project would have a less-than-significant impact or no impact on most resources. Where there is the potential for the project to result in less-than-significant impacts or significant environmental impacts (e.g., biological resources, cultural resources, transportation, hazards and hazardous materials, public services) mitigation measures have been incorporated in this document and would be applied during mining operations (see Section 5.0). These mitigation measures would reduce the potential for cumulatively considerable impacts that could occur in combination with the Short-Term or Long-Term Projects. Furthermore, because the proposed project and the Short-Term and Long-Term Projects have a very small chance of overlapping construction or operation activities and they would primarily occur at different points in time, it is not expected that impacts would be cumulatively considerable. Therefore, the proposed project does not have impacts that are individually limited but cumulatively considerable when viewed in connection with the effects of past projects, the effects of current projects, and the effects of probable future projects.

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

Please refer to the discussion in Impact (b) above. Where there is the potential for significant environmental impacts that could affect human beings (e.g., transportation, hazards and hazardous materials, public services) mitigation measures have been incorporated and would be applied during mining operations (see Section 5.0). The implementation of these mitigation measures would reduce impacts to less-than-significant levels, as described in this document. Consequently, the proposed project would not result in environmental effects which will cause substantial adverse effects on human beings either directly or indirectly.

## 5.0 MITIGATION MEASURES AND MONITORING REQUIREMENTS

The Mitigation Monitoring and Reporting Plan will be prepared as part of the Final Initial Study and Mitigated Negative Declaration.

## 6.0 ENVIRONMENTAL REFERENCE MATERIAL

The environmental reference materials cited in this document are organized by resource area.

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### Section 4.13 Population and Housing

None.

### Section 4.14 Public Services

None.

## Section 4.15 Recreation

None.

## Section 4.16 Transportation

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## Section 4.17 Utilities and Service Systems

None.

## Section 4.18 Energy

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## Section 4.19 Mandatory Findings

None.

## 7.0 CONSULTED AGENCIES

- ☒ Environmental Health
- ☐ BCAG
- ☒ Assessor
- ☒ Air Quality Management District
- ☐ City of Gridley
- ☐ Cal Fire
- ☒ Department of Conservation
- ☐ Army Corps of Engineers
- ☐ Butte Co. Farm Bureau
- ☐ El Medio Fire Department
- ☐ PG&E
- ☒ NOAA Fisheries
- ☒ Public Works
- ☐ County Counsel
- ☒ Development Services
- ☐ City of Chico
- ☐ City of Oroville
- ☐ Caltrans (Traffic)
- ☒ CA Dept. of Fish and Wildlife
- ☒ U.S. Fish & Wildlife Service
- ☐ Paradise Unified School Dist.
- ☐ NEIC
- ☐ Pacific Bell
- ☐ City of Biggs
- ☒ Building Manager
- ☐ LAFCo
- ☐ Durham Unified School District
- ☐ Sheriff
- ☐ Town of Paradise
- ☒ CA Central Reg. Water Quality
- ☐ Highway Patrol
- ☒ Agricultural Commissioner
- ☐ Feather River Recreation Dist.
- ☐ LOAPUD
- ☐ Palermo Union School District

## 8.0 PROJECT SPONSOR(S) INCORPORATION OF MITIGATION INTO PROPOSED PROJECT

I/We have reviewed the Initial Study for M&T Chico Ranch's Sacramento River Salmon Gravel Restoration Project (MIN16-0002) application and particularly the mitigation measures identified herein. I/We hereby modify the applications on file with the Butte County Planning Department to include and incorporate all mitigations set forth in this Initial Study.

James R. Well — 5/15/19

Project Sponsor/Project Agent: Date

__________________ ____________

Project Sponsor/Project Agent Date

# APPENDIX A: RECLAMATION PLAN

# Reclamation Plan

**For The**

# Sacramento River Salmon Gravel Restoration Project

Submitted To:

Development Services Department
7 County Center Drive
Oroville, CA 95965

Prepared For:

**M & T Ranch**
3964 Chico River Road
Chico, CA 95928-9633

Prepared By:

3511 Camino Del Rio South, Suite 403
San Diego, CA 92108

**November, 2017**

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## List of Attachments


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| B | Biological Resource Assessment by RBI, August 2012 |
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| Proposed dates of mine initiation and termination. | 3.2 | 11 |
| Maximum anticipated depth of the surface mining. | 3.2 | 11 |
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| A description of and plan for the type of surface mining to be employed. | 3.3-3.5 | 11-13 |
| Time schedule that provides for the completion of surface mining on each segment of the mined lands so that reclamation can be initiated at the earliest possible time on portions of the mined lands not subject to further disturbance by mining. | 3.6 | 13 |
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| Description of the manner in which reclamation, adequate for the proposed use or potential uses, will be accomplished. To include:<br>a. Description of how known contaminants will be controlled and mining waste will be disposed.<br>b. Description of the manner in which affected streambed channels and streambanks will be rehabilitated to minimize erosion and sedimentation. | a. There are no known contaminants at the site. There is no mining waste. (See Section 3.7)<br>b. The project Site does not affect the adjacent Sacramento River. (See Section 3.9) | a. 14<br>b. 15 |
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| Other information required | N/A | N/A |
| **PRC 2772.1** | | |
| Information, document, or component of a document prepared as part of a permit application for the surface mining operation or as part of an environmental document prepared for the project shall be incorporated into the reclamation plan or amendment used to satisfy the requirements shall be referenced by Appendix and page number. | Attachments:<br><br>A. Legal Description B. Biological Resource Assessment by RBI, August 2012<br>C. Oversize Reclamation Plan Exhibits, by Wayne Chang PE, October 2017 | |
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**Sacramento River Salmon Gravel Restoration Project**
# Reclamation Plan

This Reclamation Plan (RP) is submitted in accordance with the requirements of the State of California "Surface Mining and Reclamation Act of 1975" (SMARA), Public Resources Code § 2770 *et seq.*, and Butte County Code. Butte County is recognized as the SMARA Lead Agency for the mine site.

SMARA requires that all surface mining operations "reclaim" mined lands to a condition which allows post-mining land uses upon termination of surface mining activities and, as such, surface mining operations are required to have a Reclamation Plan approved by the Lead Agency.

This Reclamation Plan is comprised of five sections and attachments A through C.

Section 1.0, the **Introduction** summarizes the mining operation.

Section 2.0, the **Environmental Setting**, provides a description of the mine operation's environment.

Section 3.0, the **Operational Characteristics**, describes proposed mining activity, mine methods, and operation of the mine.

Section 4.0, the **Reclamation Plan**, describes measures that will be implemented to reclaim the mined lands including objectives and schedules.

Section 5.0, **Conformance with Reclamation Standards**, describes how the project will meet reclamation standards as defined in SMARA.

## 1.0 Introduction

The Sacramento River Salmon Gravel Restoration Project is a new alluvial mining operation located five miles southwest of the city of Chico in an unincorporated area of Butte County. M&T Ranch ("Applicant") is applying for a Conditional Use Permit ("CUP") and Reclamation Plan ("RP").

Approval of the CUP would allow mining operations to remove an existing stockpile of alluvial aggregates from wet and dry dredging operations in 2001 and 2007 as well as material placed on-site from future dredging. Currently there is approximately 300,000 tons of stockpiled alluvial aggregates. Two future dredge operations have been approved, each will deposit roughly 150,000 tons on site; for a total of 600,000 tons to be removed over the life of the project. The limits of the mining operation subject to the CUP and RP will encompass a total of 10.4 acres. Mining operations will remove an 8.3-acre stockpile of alluvial aggregates that were dredged from the Sacramento River for the purposes of maintaining pumping station inlets located in the channel. Mining and processing activities will occur over a period of approximately 20 years, however this timeline may be extended depending on the intensity of the operation.

Following the completion of mining operations, the mined lands will be revegetated with native grassland species and reclaimed to open space uses.

## 2.0 Environmental Setting

### 2.1 Project Location

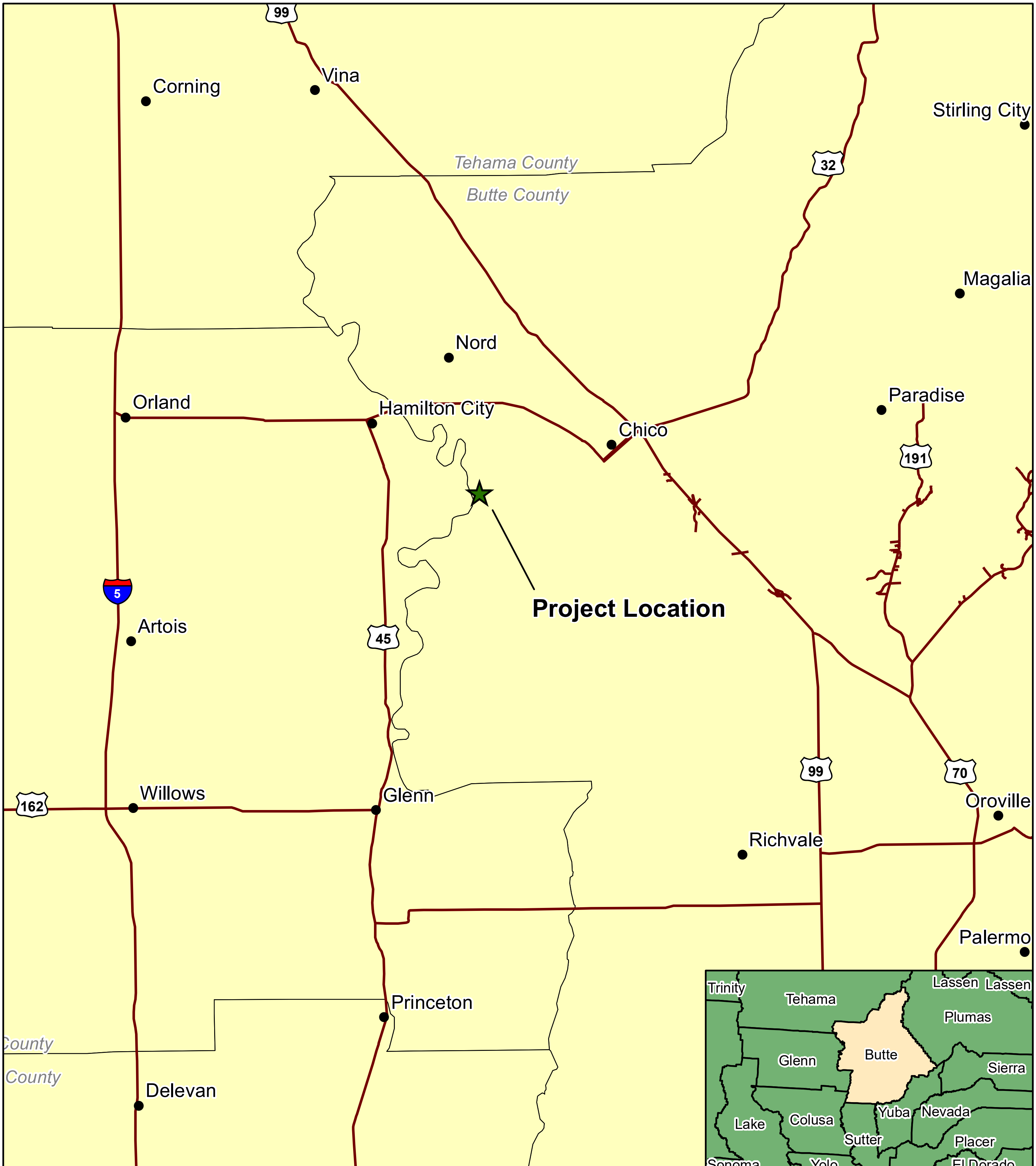
The Sacramento River Gravel Restoration site is located entirely within Butte County, California and is situated five miles southwest of the city of Chico. The address for the project site is 3964 Chico River Road, Chico, CA 95928. (See Figures 1, 2 and 3).

### 2.2 Legal Description

The mined lands occupy approximately 10.4 acres, located generally on the western border of the Rancho De Farwell. See Attachment A for a full legal description of the of the parcel where mining operations occur. The property is identified by the Butte County Assessor to encompass a portion of one APN, owned by Pacific Realty Associates (See Table 1 below).

**Table 1 Project Parcel Data**

| APN | TOTAL ACRES | Mined Lands (area) | OWNER | BUTTE COUNTY GENERAL PLAN LAND USE DESIGNATION | BUTTE COUNTY ZONING |
|---|---|---|---|---|---|
| 039-530-018 | 3,542 | 10.4 | Pacific Realty Associates, LP | AG (Agriculture) | AG (Agriculture) |




# Sacramento River Salmon Gravel Restoration Project

**Figure 1**

- ● Cities
- — Highways
- ▭ Counties

N

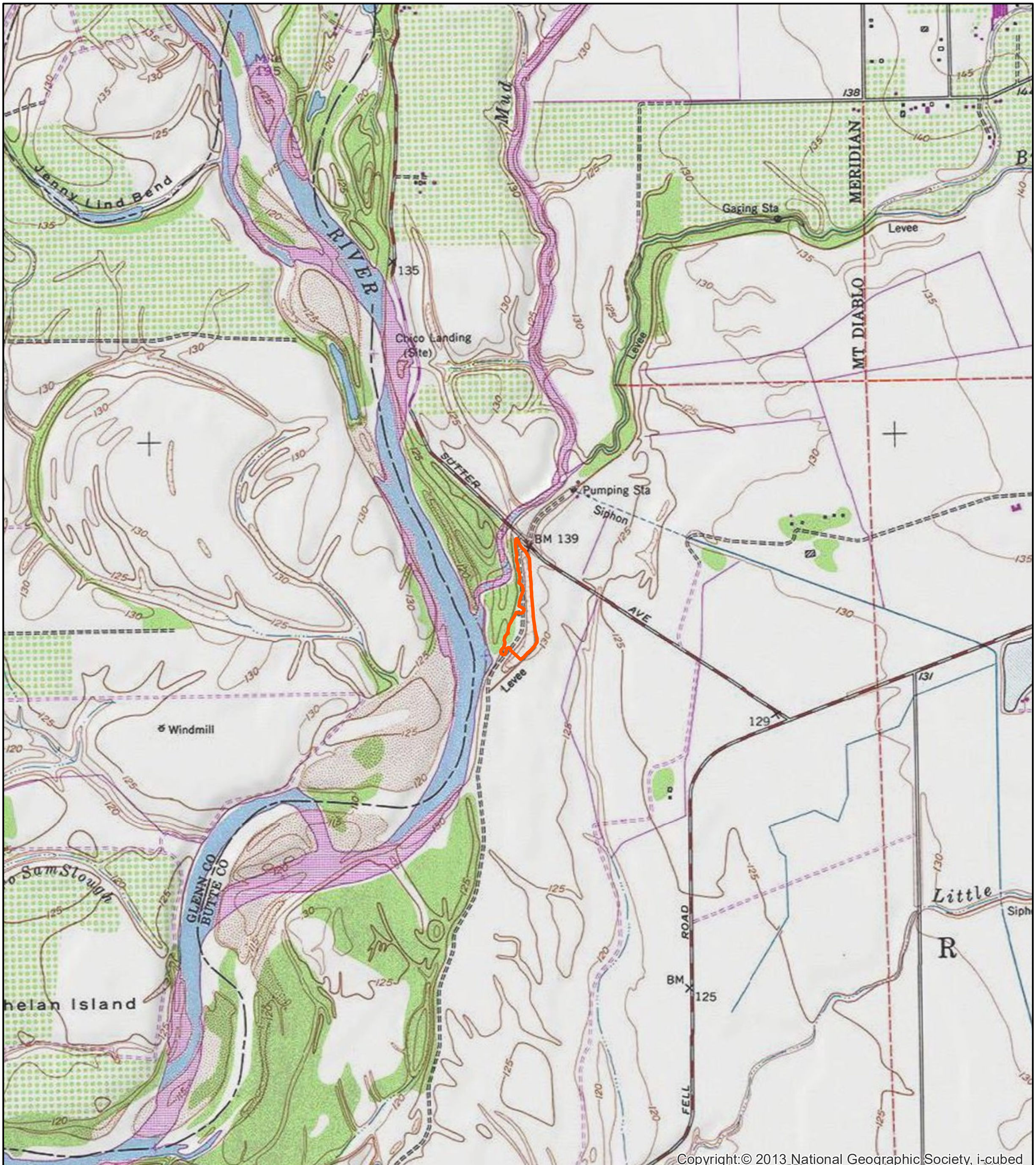
0 2.5 5

Miles

1 inch = 5 miles

EnviroMINE Inc.

Date: September 13, 2017
Counties: ESRI
Highways: ESRI




EnviroMINE Inc.

Date: September 13, 2017
Aerial: USGS 7.5 Min. Quad Map

# Sacramento River Salmon Gravel Restoration Project

**Figure 2**

Project Site

N

0 1,000 2,000
Feet
1 inch = 2,000 feet


EnviroMINE Inc.

Date: September 13, 2017
Aerial: USDA 2017

# Sacramento River Salmon Gravel Restoration Project

**Figure 3**

Project Site
Pipeline

N

0 350 700
Feet
1 inch = 700 feet

## 2.3 General Plan Land Use Category

The project site lies within an area of Butte County that is designated as Agricultural "AG" under the adopted Butte County General Plan.

Agriculture is the dominant land use within unincorporated Butte County, accounting for approximately 599,040 acres (60 percent of the county's area) spread across the county. Agricultural lands include field and row crops, orchards, rice, grazing, dry farming, and timber. The General Plan Land Use Element states that AG Land Use Category is designated to protect, maintain, promote and enhance Butte County's agriculture uses and resources, a major source of food, employment and income in Butte County. Mining and quarry activities are allowed on lands designated AG, subject to the County's surface mining ordinance.

## 2.4 Zoning

The project site is classified by Butte County Zoning as AG-Agriculture with a minimum parcel size of 160 acres.

The purpose of the AG zone is to support, protect, and maintain a viable, long-term agricultural sector in Butte County. Standards for the AG zone maintain the vitality of the agricultural sector by retaining parcel sizes necessary to sustain viable agricultural operations, protecting agricultural practices and activities by minimizing land-use conflicts, and protecting agricultural resources by regulating land uses and development intensities in agricultural areas. Permitted uses include crop cultivation, animal grazing, stock ponds, and agricultural processing. More intensive agricultural activities, such as animal processing, dairies, hog farms, stables, forestry and logging, mining and oil extraction, are permitted with the approval of a Conditional Use Permit.

## 2.5 Surrounding Land Use

The project site lies within the Central Valley, along the eastern banks of the Sacramento River. Topography in this area consists of flat expansive areas with several large tributaries of the Sacramento River gathering and joining up with the river. The land surrounding the project site is predominately covered by intensive commercial agriculture, wetlands, riparian habitat and valley oak woodland. Land use in the general area surrounding mining area includes annual crop production, water fowl habitat, scattered residential dwellings, fruit and nut orchards and a wastewater treatment plant.

The site lies five miles to the southwest of the city of Chico, which has a population base of approximately 90,000. Land use immediately surrounding the mining area is predominantly occupied by orchards, and open space with a few scattered residences. Big Chico Creek runs along the western side of the mining area and empties into the Sacramento River adjacent to the site. River Road runs east to west along this stretch of the roadway and identifies the northern limit of the mining area. Land use to the northeast and east of the mined lands is primarily walnut orchards. Surrounding land use is shown on Figure 4.


EnviroMINE Inc.

Date: September 13, 2017
Aerial: ESRI 2017

**Sacramento River Salmon Gravel Restoration Mined Lands Footprint**

Figure 4

Access Road
Pipeline
Mined Lands Footprint

N

0 375 750
Feet
1 inch = 750 feet

## 2.6 Agricultural Classification

The U.S. Department of Agriculture (USDA) classifies the farmland within the site as Other Farmland (X). Other Farmland as defined by the USDA, land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than forty acres.

In addition to the area being classified as Other Farmland the project site is also located on lands currently under a Williamson Act contract. Mining activities and reclamation of the site will be consistent with the Williamson Act contract.

## 2.7 General Physiography

The project site is located on the northern end of the Central Valley, just east of the Sacramento River. Big Chico Creek wraps around the mining area on the western side, flowing generally north to south. Topography around the site ranges from gently rolling terrain to flat plains. Elevations within the mined lands range from approximately 120 feet above mean sea level (AMSL) to 135 feet AMSL. A levee of approximately eight feet in height separates the Sacramento River floodplain from the commercial orchards to the east.

## 2.8 Climate

The climate in the project vicinity is described as a Mediterranean climate. Temperatures can rise well above 100°F (38°C) in the summer. Winters are fairly mild and wet, with the most rainfall coming in January. July is usually the warmest month, with an average high temperature of 94 F (34°C) and an average low temperature of 61°F (16°C). January is the coolest month, with an average high temperature of 55 F (13 C) and an average low temperature of 35°F (2°C). The average annual rainfall is 27 inches (69 cm). Rainfall patterns vary from year to year, but in general, the rainy season in the region is November through April, where rainfall averages between three and four inches per month. The warmer months (May through September) experience minimal rainfall. Tule fog is often present during the autumn and winter months.

## 2.9 Geology

The project site is located in an area identified by the United States Geological Survey (USGS) as Quaternary alluvium. Deposits of alluvium, mainly poorly sorted sands, gravels and boulders of streams and alluvial fans, and thin discontinuous veneers of colluvium as loose rock, talus sheets and soil, cover the valley floors and lower slopes of the ranges of the Sierra Nevada's. Colluvium sheets commonly accumulate along slopes of more than 10 degrees, and grade down slope into alluvial fan deposits and alluvium. The upper reaches of stream channels contain coarse sands and gravels, with fine sands, silts and clay in the lower portions of streams and along valley floors.

## 2.10 Surface Water

The project site is bounded by the Sacramento River and Big Chico Creek on the western side. The Sacramento River is the principal river of Northern California and is also the largest river in California. Beginning in the Klamath Mountains, the river flows south for 445 miles before reaching the Sacramento–San Joaquin River Delta and San Francisco Bay. The river drains about 27,500 square miles in 19 California counties, mostly within a region bounded by the Coast Ranges and Sierra Nevada known as the Sacramento Valley, but also extending as far as the volcanic plateaus of Northeastern California. Big Chico Creek originates on Colby Mountain, located in Tehama County, California. The creek flows 46 miles west to its confluence with the Sacramento River in Butte County. The creek's elevation ranges from 120 feet above sea level at the Sacramento River to 6,000 feet at Colby Mountain. The entire property is located within the 100-year floodplain.

## 2.11 Groundwater

The project site lies within the West Butte Sub-Basin, which covers an area of 284 square miles spread over Butte, Colusa and Glenn counties. The sub-basin is part of the of the Sacramento Valley Groundwater Basin and is bounded on the west and south by the Sacramento River, on the north by Big Chico Creek, on the northeast by the Chico Monocline, and on the east by Butte Creek. Big Chico and Butte Creeks serve as sub- basin boundaries in the near surface. The sub-basin is hydrologically contiguous with the Vina and East Butte Sub-Basins at depth. The Chico Monocline forms a geographic boundary; however, a component of recharge to the sub-basin appears east of the fault structure. Groundwater flow is southwesterly toward the Sacramento River north of the city of Princeton. South of Princeton, groundwater flows away from the Sacramento River to recharge the groundwater system. Annual precipitation within the sub-basin is approximately 18 inches in the valley, increasing to 27 inches towards the foothills.

## 2.12 Soils

Soil classifications for the project area is identified in the Butte County soil surveys completed by the USDA and NRCS as Gianella fine sandyloam, 0 to 1 percent slopes, occasionally flooded. This type of soil is located on slopes that range from 0 to 1 percent, generally located on bars and flood plains. The soil is stratified, coarse-loamy alluvium derived from igneous, metamorphic, and sedimentary rocks. This is a moderately well drained soil with a fine sandy loam texture that has anywhere from 0 to 20 percent of the surface covered by medium to well rounded gravel.

## 2.13 Biological Resources

Biological communities within the site and surrounding area were mapped by RBI Inc. in August of 2012; a terrestrial survey was also completed. Communities mapped in the report include: disturbed/ruderal, agriculture and valley oak woodland. The area proposed for resource extraction is fully disturbed and maintained without vegetation. The terrestrial survey is located in Attachment B; it describes these communities in detail.

## 3.0 Operational Characteristics

### 3.1 Owner/Operator/Agent

**Applicant**

M & T Ranch
3964 Chico River Road
Chico, CA 95928-9633

**Name of Mineral Property**

Sacramento River Salmon Gravel Restoration Project

**Property and Mineral Rights Ownership**

Pacific Realty Associates, LP
15350 SW Sequoia Parkway, Suite 300
Portland OR, 97224

**Operator**

M & T Chico Ranch
3964 Chico River Road
Chico, CA 95928-9633
(530) 518-9954

**Agent**

EnviroMINE, Inc.
3511 Camino Del Rio South, Suite 403
San Diego, CA 92108
Phone (619) 284-8515, Fax (619) 284-0115

### 3.2 Operations Data

**Mineral Commodity**

Natural and Crushed Alluvial Aggregates

**Proposed Surface Mining Initiation Date**

March 2018

**Proposed Surface Mining Termination Date**

Completion of mining is expected by December 31, 2035; reclamation is expected to be complete by December 31, 2037. Reclamation and mining may extend beyond this timeline depending on demand for aggregates; this reclamation plan has no expiration date.

**Estimated Annual Production**

Annual production at the quarry will range from 20,000 to 50,000 tons, with a maximum of 100,000 tons per year. Production estimates are based on current supply and demand for aggregates in the surrounding area and may fluctuate depending on economic conditions.

**Total Anticipated Production**

The total production from the mine will be approximately 600,000 tons.

**Maximum Anticipated Depth of Extractive Operations**

Excavation of stockpiled materials will occur at elevations ranging from 155 to 130 feet AMSL, with an average depth of approximately 20 feet below the original maximum stockpile elevation.

**Proposed Post-Mining Land Use**

At the conclusion of resource extraction, the mined lands will be reclaimed to open-space uses.

## 3.3 Operational Characteristics

The mined lands include, resource extraction, an area for the processing activities, material stockpiling, stormwater management, dewatering, an access road and general site support. The area occupies approximately 10.4 acres. Resource extraction is setback from undisturbed lands found along the western side of the site. Figure 5 displays the mined lands boundary and establishes a minimum buffer of 20 feet between a number of elderberry shrubs and any mining activity. This buffer extends along the western limits of the mined lands. The access road that extends along the eastern limits of the mined lands serves as a buffer between the mining operations and the commercial orchard to the east.

## 3.4 Extractive Operations

The following description provides an overview of extractive operations within the mining area. The mining area involves the location where dredging operations stockpiled alluvial aggregates excavated from the Sacramento River. The extractive process involves the removal of stockpiled materials, material transport and processing. Removal of the stockpile will not affect future mineral development opportunities. The stockpile is the result of ongoing maintenance operations and will replenish from time to time. No topsoil exists within the mining area.

<u>Aggregate Extraction and Transport</u>

Alluvial aggregates will be extracted with either a hydraulic excavator or a front-end loader and loaded into off-road haul trucks or directly fed into a portable crushing and screening plant. An on-site haul road is located on the eastern edge of the mined lands on the top of a non-federal levee. As the extraction activities advance in a northerly direction, the portable processing plant may be relocated closer to the active extraction area in order to minimize haul distances from off-road haul units.


EnviroMINE Inc.

Date: November 15, 2017
Aerial: ESRI 2017

# Sacramento River Salmon Gravel Restoration
## Project Footprint / Facilities

Figure 5

Pipeline
Elderberry Shrub
Mined Lands
Access Road
Project Footprint
Buffer Area

N

0 175 350
Feet
1 inch = 350 feet

Material Processing

The primary and secondary plants consist of equipment and facilities that crush, screen, wash, sort and temporarily store processed materials prior to distribution off-site. All equipment will be portable so that it can be moved out of the floodplain during times when the site may be inundated from the Sacramento River. These processes use of the following equipment and facilities:

- Cone or gyratory crushing units
- Series of vibrating screens and rock washing units
- Conveyors linking processing facilities with stockpiles
- Sedimentation basins

Alluvial aggregates are first delivered from the stockpile to the processing plant, where they are screened, crushed and either stockpiled or washed and then stockpiled. Stockpiled finished products are stored at the site and await pickup from customer trucks. An excavator or front-end-loader will be used to load stockpiled material into customer trucks.

All crushing, conveying and processing units will operate according to Permits to Operate issued by the Butte County Air Quality Management District (BCAQMD). The operation will comply with all BCAQMD rules and regulations, including requirements for the control of fugitive dust. These requirements include the use of best available control technology (BACT), which includes, wetting down stockpiles and using water sprays to reduce or eliminate dust emissions.

## 3.5 Stockpile Management

All material stockpiles are considered temporary because these materials will be exported from the site as part of the mining process. Temporary material stockpiles will be approximately 25 feet in height with slopes at the angle of repose. The stockpiles are designed with drainage control to ensure that all stormwater runoff is treated using Best Management Practices (BMPs). All stockpiles will be located within the footprint of the mined lands. Drainage will be directed inward to eliminate the potential for sediment to leave the mined lands. Stormwater controls will be monitored continuously to ensure that all BMPs are functioning properly.

## 3.6 Phasing

Because the mining area is limited to 10.4 acres, the operations will employ a single extractive phase.

As gravel builds up near the inlet of the pumping station, it may be periodically removed to allow the pumping station inlet to be fully submerged and function properly. The need for this additional gravel removal will be determined by river geomorphic changes and by what long-term solution is selected for protection of the Sacramento River water supply at M&T Ranch. If needed, a hydraulic dredge will be used to remove up to 300,000 tons of gravel and stockpile it within the mining area. Approval from state and local agencies has already been granted for two additional dredgings. The exact timing of the future dredging activities is unknown at this time.

Dredging the river is a temporary maintenance activity required to keep the pumping station functioning while a long-term and permanent solution is developed.

Mining operations are limited to removal of the materials stockpiled from the dredging operations. Site development is limited to setting up a portable processing plant and construction of settling pond for recycling of wash water. An above ground water pipeline will be extended from the pumping plant to the southern end of the mined lands to provide dust control and process water.

Final reclamation of the mined lands will take place after all material extraction activities are complete. Final reclamation will involve: equipment removal, establishment of remaining levee slopes, ripping compacted areas, finish grading, seed distribution, monitoring, maintenance and final site closure. All of these activities together are designed to achieve the goals of the Reclamation Plan to establish a post-mining open space uses.

### 3.7 Mining Waste

No permanent stockpiles of mining waste (i.e., overburden and unused rock material) will remain after final reclamation. Temporary overburden stockpiles will be subject to drainage and erosion control BMPs, and runoff from stockpiles will collect at stormwater basins without discharging outside of the mined lands. Domestic refuse will be collected in approved trash bins and removed from the mined lands by the operator. Equipment will be serviced on a daily basis by a mobile service truck. No toxic or hazardous substances will be in use at the site.

### 3.8 Operational Water

Water is required for material washing and dust control within the RP Area. Quarry operations at full build-out will require approximately 3 acre feet per year (AFY) for dust suppression and approximately 3 AFY for aggregate processing. An above ground pipeline will be extended from the pumping plant located approximately 1,500 feet south of the mining area. This pipeline will be removed when mining operations are completed.

<u>Dust Suppression Water:</u>

Water to suppress dust around the processing area and haul roads is supplied water that is pumped out of the Sacramento River by the permanent pumping station, located at the south end of the RP Area. Water is pumped to the processing area through a temporary above-ground pipeline where it is used for materials processing and into a water truck for distribution around the site as needed. It is estimated that the water truck will make two passes per day during the dry season.

<u>Wash Water for Aggregate Processing:</u>

Water utilized in the processing of aggregates is supplied to the mined lands from an above-ground pipeline that extends from the same pumping. Water utilized for aggregate processing is cycled through the secondary processing plant where clays and silts become suspended in the water. The sediment-laden water is pumped from the processing plant to a series of sediment ponds where the sediment is allowed to settle out. The total quantity of water that is consumed during the processing of aggregates within the RP Area is approximately 3 AFY. This number assumes that the majority of the water used for material washing will be recirculated back through the plant and roughly 10% of the water that is circulated through the plant is consumed by the process. Water usage depends on the amount of production and the percentage of material that requires washing. Mining and material production volumes will vary year-to-year as market demand fluctuates.

### 3.9 Stormwater and Erosion Control

Drainage within the disturbance footprint will be directed to the south and west and will either percolate into the water table or be allowed to evaporate. Site grading will direct runoff toward a number of low lying areas located within the mining footprint, away from the Sacramento River. Final reclamation of the mined lands will result in a large, fairly level area, which will not cause or contribute to off-site flooding. Drainage facilities will be designed to have a capacity to handle a 20-year storm event.

During mining and reclamation, storm water within the mining area will be managed in accordance with the approved Stormwater Pollution Prevention Plan (SWPPP). During extractive operations, stormwater and erosion control measures may include a range of BMPs:

- As necessary, silt fencing or straw wattles will be installed along the mined lands boundary;
- Grading of the mined lands to direct runoff into the interior;
- As necessary, straw mulch or other BMP's will be applied to cut slopes;
- Revegetation; and
- Minimizing disturbance.

Following the completion of surface mining operations, long-term and permanent erosion control measures will include:

- Final grading to promote positive drainage.
- Planting and hydroseeding at the appropriate time of the year to ensure revegetation of disturbed areas.
- Maintaining vegetation on areas disturbed by mining activities.

Disturbed areas will be monitored for evidence of erosion at periods specified in the SWPPP during both operational and post-operational periods. Soil surfaces will be evaluated for action according to the following Qualitative Descriptors of Soil Surface Status:

Class 1: No soil loss or erosion, topsoil layer intact, well-dispersed accumulation of litter from past year's growth; plus smaller amounts of older litter.

NO ACTION NECESSARY

Class 2: Soil movement slight and difficult to recognize; small deposits of soil in form of fans or cones at end of small gullies or fills or as accumulations back of plant crowns or behind litter; litter not well dispersed or no accumulation from past year's growth.

ACTION: Monitor to see if any further deterioration and if action is required.

Class 3: Soil movement or loss more noticeable; topsoil loss evident with some plants on pedestals or in hummocks; rill marks evident; poorly dispersed litter and bare spots not protected by litter.

ACTION: Any rills or gullies in excess of 8-square inches in cross sectional area and more than 10-linear feet located on finished slopes shall be arrested using straw mulch and hay bales.

Class 4: Soil movement and loss readily recognizable; topsoil remnants with vertical sides and exposed plant roots; roots frequently exposed; litter in relatively small amounts and washed into erosion protected patches.

ACTION: Replant and cover with straw mulch and install silt fences. If necessary, regrade and compact with equipment.

### 3.10 Equipment Maintenance

Equipment is maintained on the site by a service vehicle that performs regular maintenance and emergency repairs as needed. Fuel for the off-road equipment is supplied by fuel truck that will periodically fill equipment tanks as needed. No diesel storage tanks above or below ground exist at the site. A Spill Prevention Control and Countermeasures (SPCC) plan will guide reporting control and cleanup activities in the event of a spill in the quarry or other operating areas.

## 4.0 Mined Lands Reclamation

### 4.1 Overview

Reclamation describes the process of preparing mined lands for alternative post-mining land uses, and removing residual mining hazards. Reclamation occurs after the completion of extractive operations, and generally consists of equipment removal, rough and finish grading, revegetation, and monitoring until reclamation performance standards are met. Figure 6 illustrates the area of the site to be reseeded following final site grading. The access road that extends along the eastern edge of the mined land will be retained. All other areas will be seeded with a rangeland seed mix. The final reclaimed landform is shown on Attachment C.

The goals of mined land reclamation are to:

1. Adapt mined areas to open space land uses.
2. Stabilize the soil so that erosion is controlled.
3. Revegetate mined lands to create a habitat allowing for the gradual invasion and establishment of native plant species from the surrounding undisturbed plant communities through natural successional processes.
4. Maximize the recovery of mineral resources in a safe and efficient manner; and
5. Mitigate, by design, potential environmental impacts on the land that might otherwise be created by extraction.


# Sacramento River Salmon Gravel Restoration
## Final Reclamation

Figure 6

Access Road
Project Footprint
Revegetation Area

EnviroMINE Inc.

Date: November 15, 2017
Aerial: ESRI 2017

N

0 150 300
Feet
1 inch = 300 feet

### 4.2 Final Slope Grading

Mining will remove a stockpile of material that is roughly 20' in height and leave a fairly level area that has a final elevation of approximately 135' AMSL. The majority of the level area will be sloped at 1 to 2 percent to promote positive site drainage. Along the eastern limits of the mining operation, slopes from an adjacent levee will be reestablished with a maximum of 2:1 (h:v) slopes.

### 4.3 Growth Medium Distribution

The growth medium used for revegetation will consist of salvaged growth medium and wash fines collected during processing operations. The proportions of growth medium and any additions or amendments will be guided by the test plot data described in Section 4.6. As set forth below, growth medium will be distributed over the site, as needed, based on test plot results.

Grading of the mined lands is intended to return the site to a condition that existed prior to stockpiling of alluvial aggregates, while providing for proper. Low areas in the topography will be filled and hummocks and sand mounds will be flattened, providing stable drainage. In general, the area will be graded to direct runoff away from the Sacrament River and Big Chico Creek toward several low-lying areas where water will percolate into the sub-surface or evaporate.

In addition to grading the site to contour the topography for drainage purposes, compacted areas of the will be ripped to a depth of at least six (6) inches to decompact the surface in preparation for revegetation. Areas where existing vegetation is established and proper drainage exists will not require grading to achieve reclamation.

### 4.4 Soil Amendment Requirements

If testing indicates a deficiency in soil chemistry, amendments may be added to the soil to enhance the fertility of growth medium. All soil amendments will be free of any exotic species to avoid accidental introduction. Soil analysis shall be conducted to ensure that the pH and the essential nutrients, such as Nitrogen (N) Phosphorus (P) and Potassium (K), are balanced in the soil and equivalent to approximate surrounding undisturbed soil conditions.

### 4.5 Vegetative Cover Analysis

Revegetation species utilized to reclaim mined lands have been selected to provide adequate cover for the post-mining land use. Baseline studies were conducted to determine species richness and cover; the full report is included as Attachment B. Revegetation species were selected based on baseline studies and are suitable for the proposed end use of open space and are self-sustaining. The proposed revegetation seed mix in Section 4.10 may be adjusted based on the results of test plots to be installed concurrent with mining operations.

## 4.6 Test Plots

Test plots will be constructed, as extraction continues, to determine the most appropriate seeding and planting procedures to ensure successful implementation of the revegetation plan, and to determine the optimal blend of growth medium and any soil additives and amendments for revegetation success. Each vegetation test plot will be comprised of a 0.02-acre area that is 20 feet wide by 40 feet long and demarcated with stakes. In this area, there will be a representative population of seed proportional to the numbers proposed in Table 4 in Section 4.10. The test plots will be located near the southern limits of the mining area. Test plots will be initiated once there is adequate space available. The area will be corner staked with iron T-posts and labeled "Test Plot" on all four corners.

Four treatment alternatives will be tested as follows:

**Option 1** – Standard

This option will be identical to that proposed above for the reclamation of disturbed areas of the site. This option will allow the operator to test proposed methods and compare them to other alternatives.

**Option 2** – Mulch

Mulch will be added to the standard treatment, and the treatment will be applied in three applications, as follows:

- 1st Pass – 500 lbs wood fiber-mulch, 1,000 lbs compost, and seed
- 2nd Pass – Straw at 2 tons/acre
- 3rd Pass – 500 lbs wood fiber-mulch, 1,000 lbs compost, tackifier, fertilizer

**Option 3** – No Compost

This alternative will allow the mine operator to gauge the effect of not adding compost to the treatment. This option substitutes additional wood fiber-mulch for the compost in the standard treatment.

**Option 4** – Inoculants

This option tests the effect of inoculating the quarry soils with mycorrhizal fungus, which assists plant roots with nutrient uptake. The treatment will be similar to the standard treatment, but with 60 lbs/acre of AM-120 mycorrhizal inoculant added. The remainder of the test plots will remain untreated and will serve as a "No-Treatment" control option. The results from the tests will be reported in terms of overall ground cover, and in terms of numbers of individual species, where appropriate. Treatments determined to have positive effects on seed mix propagation will be considered for general implementation on areas of the site that are to be revegetated.

Success of these revegetation areas shall be judged based upon the effectiveness of the vegetation for the approved end use and by comparing the quantified measures of vegetative cover, density, and species richness of the reclaimed lands similar to that of the surrounding area. Comparisons will be made by a qualified individual until performance standards have been met.

### 4.7 Mined Lands Decompaction

All compacted areas that are to be revegetated may be ripped to a depth of at least six (6) inches to facilitate revegetation. Where project operations result in compaction of the soil (roads and pads), scarifying of the soil will be used to eliminate compaction and to establish a suitable root zone in preparation for planting. All soil surfaces that are to be revegetated will be left in as rough a condition as possible. The goal is to create small cracks and crevices for the seeds to lodge and to improve water infiltration.

### 4.8 Road Reclamation

The temporary haul road on the east side of the mined lands will be retained for use with the agricultural operations.

### 4.9 Temporary Access Issues

The existing project road will be kept active through occasional grading and maintenance.

### 4.10 Revegetation Species

Revegetation of the mined lands will be completed using distribution of a single seed mix composed of native species that are located in the vicinity; the seed mix will be referred to as the rangeland seed mix. Distribution methods such as hydroseeding, broadcast seeding, drill seeding, and imprint seeding may be used for application of the seed mix.

<u>Rangeland Seed Mix</u>

The rangeland seed mix will provide vegetative cover of the mined lands on all areas of the site that have been disturbed by mining activities. This seed mix is designed to propagate quickly to stabilize the soil. The seed mix is made up of perennial species that are capable of self-propagation and long-term establishment without human intervention. The seed mix and distribution rates may be adjusted as needed depending on species availability and the results from the test plots. The rangeland seed mix also will serve as an erosion control seed mix and cover for stockpiles if needed during mining operations.

**Table 4 Rangeland Seed Mix**

| Common Name | Scientific Name | Mix |
|---|---|---|
| California Brome | *Bromus carinatus* | 10 Lbs/Acre |
| Blue Wild-Rye | *Elymus glaucus* | 12 Lbs/Acre |
| Lana Wooly Pod Vetch | *Vicia villosa* | 7 Lbs/Acre |
| Purple Needle Grass | *Nassella pulchra* | 3 Lbs/Acre |
| California Poppy | *Eschscolzia californica* | 3 Lbs/Acre |
| Deer Grass | *Muhlenbergia rigens* | 5 Lbs/Acre |
| Red Fescue | *Festuca rubra* | 10 Lbs/Acre |
| **Total** | | **50 Lbs/Acre** |

## 4.11 Hydroseeding

The seed mixes described above will be applied using any combination of hydroseeding, broadcast seeding, imprint seeding, drill seeding or other methods of seed distribution found to be successful in revegetation efforts. If hydroseeding is the selected method of seeding; details on the slurry application are discussed below.

The first step is to apply the seed, a small amount of virgin wood-fiber mulch, compost, and organic time-released fertilizer (Biosol® or equivalent):

- Seed – Refer to Table 5 for seed mix
- Wood-fiber mulch – 100 lbs/acre
- Compost – 500 lbs/acre
- Fertilizer – Biosol® 7-2-3 at 300 lbs/acre

The second step is to immediately cover the first coating with slurry of a greater amount of wood fiber and compost:

- Wood-fiber mulch – 400 lbs/acre
- Compost-1500 lbs/acre

The mulch layer will reduce soil erosion, reduce seed loss to birds and rodents, and add organic material to the growth medium as it breaks down. The organic matter will provide a long-term source of nutrients, increase water-holding capacity, and improve the texture of the soil. The development of an organic duff layer, similar to that present underneath undisturbed valley oak woodland adjacent to the mined lands, will increase the amount of organic matter and improve moisture retention.

Commercial fertilizers intended for agricultural or ornamental applications are not included in the revegetation strategy because they provide a strong flush of nutrients at concentrations rarely present in nature. The result is often rapid growth of weedy grasses and herbs, which then may out-compete slower-growing chaparral species for sunlight and soil water. Biosol® fertilizer (or a comparable product) is a slow-release fertilizer designed for restoration objectives, and provides a steady supply of major nutrients at relatively low concentrations. If necessary, the hydroseeding slurry and application methods may be adjusted by the revegetation specialist.

<u>Fertilizer:</u>

Growth medium shall be analyzed to determine the presence of essential elements for growth of the rangeland seed mix. If the soil analysis shows that fertility levels or soil nutrients are inadequate to successfully implement the revegetation of the mined lands, the appropriate fertilizers can be selected to account for these deficiencies. Fertilizers and amendments should be selected and applied to avoid contamination to surface and ground water.

## 4.12 Planting Times

All seeding should be performed and completed between October 15 and December15. Planting should be timed to occur with the first soaking rains of the season because the beneficial temperatures and anticipated rainfall will aid in germination and establishment.

## 4.13 Weed Management

Maintenance of the revegetation areas shall consist of reseeding unsuccessful revegetation efforts, weed eradication to limit and control invasive noxious weeds, and repair of erosion damage. The most likely of these species to occur in the revegetated areas is yellow star-thistle (*Centaurea solstitialis*). Normal revegetation progress should discourage the spread of yellow star-thistle and eventually displace it.

If biological monitors note dense, rapidly spreading, or persistent stands of yellow star-thistle (or other noxious weed species) in revegetation areas, a control strategy will be developed and implemented.

Noxious weeds that invade the mined lands and inhibit success of the reclamation effort shall be removed. The first method of controlling weeds at any site is to reduce the area and time that the ground surface is disturbed.

The occurrence of weeds within the mined lands shall be monitored by visual inspection. The goal is to prevent weeds from becoming established and depositing seeds in areas to be revegetated at a later date. If inspections reveal that weeds are establishing or have been established on the mined lands, then removal will be initiated. Inspections shall be made biannually in conjunction with revegetation monitoring unless conditions warrant more frequent inspections. Eradication measures shall be taken when these species are detected at threshold levels of one plant per less than 100 square feet.

Weed removal will be accomplished through manual, mechanical, or chemical methods, depending on the specific circumstances. For example, solitary or limited numbers of tree and tree-like species will be manually removed (chopped), and the stumps will be sprayed with an approved weed killer such as Round-Up. Smaller plants that cover more area may be sprayed, scraped with a tractor, or chopped by hand. Weed removal methods used would be dependent upon the size of the area of infestation and the number of desired revegetation species in proximity or mixed with the weeds.

## 4.14 Contingency Planting

If revegetation efforts are not successful according to the success criteria in Section 4.16 within two years following the initial seeding and planting, the revegetated areas will be reevaluated to determine the necessary measures to improve revegetation success.

If necessary, these areas will be revegetated with modified methods. These may include the use of container stock and irrigation or simple reseeding during a wet winter season. Prior to reseeding and/or planting, the revegetation specialist shall evaluate previous revegetation practices and test plot results in an attempt to identify methods to benefit the overall revegetation effort. If after the mined lands are reseeded and/or planted and revegetation efforts still do not yield satisfactory results, additional reseeding or other intervention methods may be required.

### 4.15 Revegetation Phasing

No reclamation phasing applies to this project. Due to the possibility for stockpiling of additional alluvial aggregates at the site, revegetation will follow the completion of all mining activities. Final landforms reached during ongoing mining operations will be revegetated when it is determined that no further aggregates will be stockpiled in that specific area.

### 4.16 Success Criteria

Monitoring revegetation plan success by conducting regular follow-up inspections provides assurance that revegetation conforms to the stated goals listed in Table 5. It also provides a contingency to address unforeseen problems and evaluate year-to-year variation in natural successional processes. These follow-up visits and field studies evaluate the progress of revegetation effort so that necessary remedial measures can be recommended and implemented in a timely manner.

<u>Hydroseed Areas</u> - Sampling plots will be selected randomly throughout the areas hydroseeded with the rangeland seed mix to determine native species richness and percent cover of each seed mix. The number of plots for the hydroseeded areas will be selected in order to achieve an 80 percent confidence level in the performance results.

During visits to the mined lands, the revegetation efforts will be examined by evaluating the following:

**A.** The success of stabilizing the soil so that soil erosion is controlled over the short or long term.

**B.** The success of re-establishing favorable soil conditions will be monitored so that open space can become established.

**C.** The success of establishing habitat conditions on the mined lands, which are favorable for the gradual invasion and establishment of the native flora from the surrounding areas.

**D.** The plants shall also be examined for pests and pest damage to make sure that potentially harmful infestations do not occur.

Monitoring for reclamation success will be conducted on an annual basis until performance standards over all areas disturbed by mining operations within the are attained. Annual assessment reports will assess the success of the seed mix and amend the ratios as appropriate based on the progress of revegetation. If necessary reseeding may be necessary to meet performance standards.

**Table 5 Revegetation Performance Standards**

| Vegetative Type | Species Composition/ Species Richness | Percent Cover | Density | Test Plot Size |
|---|---|---|---|---|
| Rangeland seed mix | 2 or more of the most prevalent species shall be from the rangeland seed mix | 60% cover (all species combined) | N/A | 80 sq. ft. plot |

## 4.17 Effect of Reclamation on Future Recovery of Mineral Resources

This Reclamation Plan will not preclude future extraction activities on this property or within the surrounding area.

## 4.18 Post Extraction Public Safety

Public health and safety will be protected in accordance with Butte County standards. During the lifetime of the Sacramento River Salmon Gravel Restoration Project, public access will be controlled by locked gates on the access road. In addition, signs will be posted around the perimeter of the project site. These signs will read “Private Property,” “No Trespassing,” and “Danger: Steep Slopes” as appropriate. All MHSA and Cal OSHA rules, regulations, and standards will be observed to protect both the public and on-site employees.

## 5.0 Conformance with Reclamation Standards

### Purpose

SMARA requires that approved reclamation plans incorporate verifiable standards to assure adequate completion of reclamation plan objectives. The verifiable standards were adopted by the State Board of Mining and Geology as regulations to implement these requirements. These regulations are known as the "Reclamation Standards" (PRC Article 9, Sections 3700 *et seq.*). The following discussion addresses compliance with these standards as outlined in the Sacramento River Salmon Gravel Restoration Project Reclamation Plan.

## 5.1 Financial Assurances (14 CCR § 3702)

The project will be subject to a required financial assurance to ensure that reclamation is performed in accordance with the approved reclamation plan. Financial assurances are reviewed annually by the Lead Agency and adjusted as necessary. Financial assurances must be in place prior to commencement of operations.

## 5.2 Wildlife Habitat (14 CCR § 3703)

The site is currently utilized as a stockpile area for alluvial aggregates and vacant land; however, some of the plant communities present adjacent to the site are suitable for wildlife habitat. Valley oak woodlands, ruderal/disturbed, agriculture and sandbar willow thickets occupy areas to the west of the mined lands and provide cover, foraging, nesting, and resting opportunities. Species common to these habitats include: House Finch (*Carpodacus mexicanus*), American Robin (*Turdus migratorius*), Mourning Dove (*Zenaida macroura*), European Starling (*Sturnus vulgaris*), Lesser Goldfinch (*Spinus psaltria*), Red-Tailed Hawk (*Buteo jamaicensis*), Black-Headed Grosbeak (*Pheucticus melanocephalus*), California Towhee (*Pipilo crissalis*) and American Goldfinch (*Carduelis tristis*).

Rare, threatened or endangered species as listed by the California Department of Fish and Wildlife, (California Code of Regulations, Title 14, sections 670.2 - 670.5) or the U. S. Fish and Wildlife Service, (50 CFR 17.11 and 17.12) or species of special concern as listed by the California Department of Fish and Wildlife will be protected throughout mining and reclamation. At completion of mining, the reclamation plan is designed to establish wildlife habitat that is at least as good as that which existed before mining operations began.

## 5.3 Backfilling, Regrading, Slope Stability, and Recontouring (§3704)

SMARA's reclamation standards provide that reclaimed fill slopes shall not exceed 2.0H:1.0V except when based on a site-specific engineering and geologic analysis showing that the proposed final slope will have a minimum slope stability factor of safety ("FOS") that is suitable for the proposed end use. Slopes steeper than 2:1 are not part of the final landform, therefore a site specific slope stability analysis is not included as an aspect of the reclamation plan. However, final cut slopes will have a minimum factor of safety for the proposed end use and conform to the surrounding topography.

As reclamation progresses, all wash fines stored within the mining area will be incorporated into growth media throughout the mined lands footprint as part of the revegetation process.

### 5.4 Revegetation (14 CCR § 3705)

Revegetation of the mined lands will include all areas disturbed from mining operations with one native seed mix. Distribution methods such as hydroseeding, broadcast seeding, drill seeding, and imprint seeding may be used for the application of the seed mix. Refer to Section 4 for a complete description of revegetation methods utilized along with the seed mix.

### 5.5 Drainage, Diversion Structures, Waterways, and Erosion Control (14 CCR § 3706)

The Sacramento River Salmon Gravel Restoration Project Reclamation Plan is designed to control surface runoff to protect surrounding land and water resources in accordance with the federal Clean Water Act and other applicable local, state, and federal requirements. All operations within the mined lands will comply with the National Pollutant Discharge Elimination System (NPDES) General Permit associated with industrial activities. A system of Best Management Practices (BMPs) is required to be employed in accordance with a Water Quality Management Plan (WQMP) and Storm Water Pollution Prevention Plan (SWPPP). Drainage and erosion controls apply at all stages of operation and reclamation and will be designed to exceed the 20-year storm event.

### 5.6 Prime Agricultural Land Reclamation (14 CCR § 3707)

The project is not located on land classified by the USDA as Prime Farmland. The land has never been used for crop production.

### 5.7 Other Agricultural Land (14 CCR § 3708)

The site is located on land that is classified by the USDA as Other Farmland and is currently under a Williamson Contract agreement. This project is compatible with the Williamson Act because it will not permanently remove the land from its principal use which has been open space. The reclamation plan is designed to return the land to similar quality range land that existed prior to stockpiling aggregates within the project footprint.

The Williamson Act itself specifies criteria for compatible land uses. These criteria are listed in Government Code Section 51238.1 and are described below:

> *51238.1. (a) Uses approved on contracted lands shall be consistent with all of the following principles of compatibility:*
>
> > *(1) The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in agricultural preserves.*

*(2) The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in agricultural preserves. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping.*

*(3) The use will not result in the significant removal of adjacent contracted land from agricultural or open-space use.*

Since current or potential agricultural productivity within the site or on surrounding lands will not be significantly impacted by the mining and reclamation plan, the project meets the principles of Government Code Section 51238.1. The revegetation plan is designed to return the project area to open space land. The revegetation plan is accompanied with performance standards as well as a monitoring plan to ensure that the quality of the range land is returned to the same that existed prior to stockpiling of aggregates within the project limits. Thus, based on the allowed uses in the Williamson Act itself, this project will not affect the Williamson Act contract held on the site.

## 5.8 Building, Structure, and Equipment Removal (14 CCR § 3709)

No structures are present on the project site. Any structures that might be located within the mined lands will be removed from site as part of the reclamation activities. Any refuse in the reclamation plan limits will be collected in approved trash bins and hauled to the nearest approved landfill for disposal. Equipment and materials will be removed from the mined lands at the completion of mining operations.

## 5.9 Stream Protection, Including Surface and Groundwater (14 CCR § 3710)

The Sacramento River Salmon Gravel Restoration Project will include stormwater protection measures designed to eliminate the potential for erosion and sedimentation discharges off the mined lands. These measures will be compliant with appropriate sections of the federal Clean Water Act, Porter-Cologne Act, and the California Regional Water Quality Control Board.

The erosion control methods described in Section 3.9 and the reclamation practices outlined in Section 4.0 identify measures that will control erosion and sedimentation. In addition to these plan measures, the Lead Agency will conduct annual inspections to ensure implementation of these water quality protection measures.

## 5.10 Topsoil Salvage, Maintenance, and Redistribution (14 CCR § 3711)

No topsoil is present within the mined area.

### 5.11 Tailing and Extraction Waste Management (14 CCR § 3712)

Any overburden generated during the mining process will be stockpiled within the mined lands. As the final elevations are established and operations allow, overburden or wash fines will be distributed around the mined lands and used a growth media for reclamation purposes. There will be no tailings permanently stored at the mine.

### 5.12 Closure of Surface Openings (14 CCR § 3713)

Not Applicable.

### 5.13 Administrative Requirements

Lead Agency Information:

| | |
|---|---|
| Lead Agency: | County of Butte Planning Department |
| Staff Contact: | Rowland Hickel |
| Telephone: | (530) 538-7150 |
| Address: | 7 County Center Drive, Oroville, CA 96965 |

### 5.14 Statement of Responsibility

M & T Ranch certifies that information contained in this reclamation plan application is correct to the best of its knowledge. M & T Ranch accepts responsibility for reclamation of the Sacramento River Salmon Gravel Restoration Project as set forth in this Reclamation Plan.

M & T Ranch Agent:________________________________________

Date:______________________

Print Name/Title: Les Heringer, Ranch Manager

**References**

Butte County General Plan. *http://www.buttegeneralplan.net/*. Web January 2014-15

Butte County Land Use Ordinance. *https://www.buttecounty.net/dds/Planning/Zoning.aspx*. Web January 2014-15

California Department of Conservation. “*Farmland Mapping and Monitoring program.”* *http://www.conservation.ca.gov/dlrp/fmmp* Web January 2014-15

FEMA. “*FIRM Flood Insurance Rate*.” Map, Butte County California, Panel 485 of 1200. January 6, 2011.

HDR. “*M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project Environmental Assessment/Initial Study Proposed Finding of No Significant Impact, and Proposed Mitigated Negative Declaration*.” December 2013

M & T Ranch, Les Heringer, personal communication. 2014-15

NRCS/USDA. “ *Soil Survey of Butte Area, California, Parts of Butte and Plumas Counties Butte County Soil Survey*.” Field work completed 2001, report published 2005.

Surface Mining and Reclamation Act (SMARA), 1975

USDA. “*Other Farmlands Definition: Prime & other Important Farmlands Definition*.” *http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/pr/soils/?cid=nrcs141p2_037285*. Web January 2014-15.

Williamson Act, California Government Code Section 51238.1

# Attachment A
# Legal Description

## EXHIBIT A

### Legal Description of Property

All that certain real property situated in the County of Butte, State of California, and more particularly described as follows:

PARCEL I:

LOT 56 AND ALL THAT PORTION OF LOT 55, LYING SOUTHERLY OF A LINE BEGINNING AT THE SOUTHWEST CORNER OF LOT 54; THENCE SOUTH 71 DEG. 38' WEST, 825.7 FEET TO THE SOUTHWESTERLY LINE OF SAID LOT 55, ALL OF THE "JOHN CROUCH SUBDIVISION", WHICH MAP WAS RECORDED IN THE OFFICE OF THE RECORDER OF THE COUNTY OF BUTTE, STATE OF CALIFORNIA, ON DECEMBER 7, 1908, IN BOOK 6 OF MAPS, AT PAGE(S) 81.

APN 039-530-003 (PORTION)

PARCEL II:

ALL THAT PORTION OF LOT 68, AS SHOWN ON THAT CERTAIN MAP ENTITLED, "JOHN CROUCH SUBDIVISION", WHICH MAP WAS RECORDED IN THE OFFICE OF THE RECORDER OF THE COUNTY OF BUTTE, STATE OF CALIFORNIA, ON DECEMBER 7, 1908, IN BOOK 6 OF MAPS, AT PAGE(S) 81, LYING WEST OF A LINE DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE CENTERLINE OF CROUCH AVENUE AND THE WESTERLY EXTENSION OF THE CENTERLINE OF THIRD AVENUE, AS SHOWN ON THE MAP OF SAID CROUCH SUBDIVISION; THENCE NORTHWESTERLY ALONG SAID CENTERLINE OF CROUCH AVENUE, A DISTANCE OF 1017.55 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE EASTERLY AND HAVING A RADIUS OF 450.00 FEET; THENCE NORTHERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 62 DEG. 30' (LONG CHORD IS 466.90 FEET), AN ARC DISTANCE OF 490.87 FEET TO THE END OF SAID CURVE; THENCE TANGENT TO SAID CURVE AND ALONG THE CENTERLINE OF SAID CROUCH AVENUE, 360.37 FEET, MORE OR LESS, TO AN INTERSECTION WITH THE WESTERLY EXTENSION OF THE CENTERLINE OF COSBY AVENUE, AS SHOWN ON SAID MAP AND THE END OF SAID LINE.

APN 039-530-003 (PORTION)

PARCEL III:

THAT PORTION OF THE FARWELL RANCHO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWESTERLY CORNER OF LOT 26, AS SHOWN ON THAT CERTAIN MAP ENTITLED, "JOHN CROUCH SUBDIVISION", WHICH MAP WAS RECORDED IN THE OFFICE OF THE RECORDER OF THE COUNTY OF BUTTE, STATE OF CALIFORNIA, ON DECEMBER 7, 1908, IN BOOK 6 OF MAPS, AT PAGE(S) 81; THENCE ALONG THE SOUTHERLY LINE OF SAID SUBDIVISION, THE FOLLOWING COURSES AND DISTANCES: NORTH 85 DEG. 08' EAST 728.8 FEET; NORTH 73 DEG. 08' EAST 1166.5 FEET; SOUTH 57 DEG. 57' EAST 1443.3 FEET; NORTH 71 DEG. 38' EAST 1010.7 FEET TO THE CENTER OF CROUCH AVENUE OF SAID SUBDIVISION; THENCE ALONG THE CENTER OF CROUCH AVENUE, SOUTH 2 DEG. 38' WEST 615.9 FEET; SOUTH 60 DEG. 28' EAST 1127.2 FEET TO A POINT IN THE CENTER OF SAID CROUCH AVENUE ON THE NORTHERLY BANK OF EDGAR SLOUGH; THENCE SOUTHWESTERLY ALONG THE FENCE ON THE NORTHERLY BANK OF SAID SLOUGH, SOUTH 12 DEG. 42' WEST 473 FEET; SOUTH 42 DEG. 43' WEST 183 FEET; SOUTH 38 DEG. 05' WEST 150 FEET; SOUTH 69

DEG. 33' WEST 218 FEET; SOUTH 45 DEG. 07' WEST 198 FEET; SOUTH 52 DEG. 41' WEST 251 FEET; SOUTH 56 DEG. 18' WEST 262 FEET; SOUTH 79 DEG. 04' WEST 146 FEET; SOUTH 51 DEG. 16' WEST 272 FEET; SOUTH 14 DEG. 48' WEST 177 FEET; SOUTH 23 DEG. 53' WEST 123 FEET; SOUTH 11 DEG. 36' WEST 144 FEET; SOUTH 57 DEG. 08' WEST 180 FEET; SOUTH 85 DEG. 08' WEST 253 FEET; SOUTH 58 DEG. 34' WEST 197 FEET; SOUTH 36 DEG. 42' WEST 438 FEET; SOUTH 57 DEG. 51' WEST 115 FEET; NORTH 73 DEG. 19' WEST 117 FEET; SOUTH 75 DEG. 42' WEST 115 FEET; NORTH 84 DEG. 47' WEST 145 FEET; NORTH 70 DEG. 15' WEST 223 FEET; SOUTH 73 DEG. 36' WEST 131 FEET; NORTH 86 DEG. 44' WEST 96 FEET; NORTH 10 DEG. 24' WEST 113 FEET; SOUTH 72 DEG. 21' WEST 468.3 FEET TO A POINT ON THE NORTH BANK OF EDGAR SLOUGH; THENCE SOUTH 17 DEG. 39' EAST 70 FEET TO A POINT ON THE SOUTH BANK OF EDGAR SLOUGH; THENCE ALONG THE FENCE ON THE SOUTH BANK OF SAID SLOUGH; SOUTH 70 DEG. 42' WEST 752 FEET; SOUTH 38 DEG. 03' WEST 146 FEET; SOUTH 49 DEG. 34' WEST 463 FEET; SOUTH 43 DEG. 53' WEST 162 FEET; SOUTH 51 DEG. 39' WEST 367 FEET; SOUTH 45 DEG. 44' WEST 246 FEET; SOUTH 52 DEG. 57' WEST 1093 FEET; SOUTH 47 DEG. 48' WEST 1320.3 FEET TO A POINT ON THE SOUTH BANK OF SAID EDGAR SLOUGH IN THE EAST LINE OF THE PHELAN RANCH; THENCE NORTH 0 DEG. 08' EAST ALONG SAID EAST LINE 1529 FEET TO A GRANITE MONUMENT; THENCE SOUTH 71 DEG. 21' WEST, 2535.5 FEET TO A GRANITE MONUMENT; THENCE NORTH 0 DEG. 29' WEST, ALONG THE SAID LINE OF THE PHELAN RANCH 5200 FEET TO A POINT ON THE NORTH BANK OF LITTLE CHICO CREEK; THENCE ALONG THE FENCE ON SAID NORTH BANK; NORTH 84 DEG. 12' EAST, 289.1 FEET; SOUTH 73 DEG. 37' EAST 292.9 FEET; NORTH 74 DEG. 06' EAST 528.6 FEET; THENCE CROSSING SAID CREEK, SOUTH 20 DEG. 22' EAST, 77.8 FEET TO A POINT IN THE CENTER OF SAID CREEK, SAID POINT BEING ALSO ON THE SOUTHERLY BOUNDARY OF THE NOBLE AND WATKINS SUBDIVISION; THENCE MEANDERING UP THE SAID CHANNEL OF LITTLE CHICO CREEK, ALONG THE SOUTHERLY BOUNDARY OF THE NOBLE AND WATKINS SUBDIVISION; NORTH 73 DEG. 00' EAST 70.5 FEET; NORTH 55 DEG. 06' EAST 93.4 FEET; NORTH 59 DEG. 02' EAST 125.0 FEET; SOUTH 70 DEG. 56' EAST, 133.0 FEET; SOUTH 83 DEG. 05' EAST, 270.0 FEET; NORTH 76 DEG. 01' EAST, 120.00 FEET; NORTH 54 DEG. 57' EAST, 275.0 FEET; NORTH 76 DEG. 57' EAST, 222.0 FEET; THENCE LEAVING THE CHANNEL OF LITTLE CHICO CREEK, SOUTH 67 DEG. 42' EAST, 306.1 FEET TO THE SOUTHWESTERLY CORNER OF THE "ALBERTON TRACT", WHICH REVISED MAP WAS RECORDED IN THE OFFICE OF THE RECORDER OF THE COUNTY OF BUTTE, STATE OF CALIFORNIA, ON NOVEMBER 29, 1895, IN BOOK 1 OF MAPS, AT PAGE(S) 31; THENCE ALONG THE SOUTHERLY BOUNDARY OF THE ALBERTON TRACT, SOUTH 74 DEG. 05' EAST, 204.6 FEET; NORTH 75 DEG. 55' EAST, 132.0 FEET; NORTH 35 DEG. 55' EAST, 217.8 FEET; NORTH 65 DEG. 55' EAST, 244.2 FEET; NORTH 88 DEG. 55' EAST, 336.6 FEET; NORTH 72 DEG. 25' EAST 293.7 FEET; NORTH 87 DEG. 40' EAST, 455.4 FEET; SOUTH 86 DEG. 50' EAST, 455.4 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM ALL THAT PORTION LYING NORTHERLY OF THE CENTERLINE OF LITTLE CHICO CREEK. (SAID PORTION SO EXCEPTED, BEING A PORTION OF LOTS 6 AND 7 OF THE ABOVE MENTIONED NOBLE AND WATKINS SUBDIVISION).

APNS 039-530-003 (PORTION) AND 039-530-004 (PORTION)

PARCEL IV-A:

COMMENCING AT A POINT IN THE CENTER OF BIG CHICO CREEK AT THE NORTHWEST CORNER OF THAT CERTAIN PARCEL OF LAND DESCRIBED IN DEED FROM DAVID M. REAVIS TO JAMES J. MOREHEAD, DATED MARCH 10, 1876 AND RECORDED MARCH 15, 1876, IN BOOK 16 OF DEEDS, PAGE 123, BUTTE COUNTY RECORDS; RUNNING THENCE IN A WESTERLY DIRECTION DOWN THE CENTER OF BIG CHICO CREEK TO THE SACRAMENTO RIVER; THENCE IN A SOUTHERLY DIRECTION FOLLOWING THE COURSE OF SAID SACRAMENTO RIVER TO A POST ON THE LEFT BANK THEREOF MARKED E. E. 4 J. W., THE SAME BEING AT THE SOUTHWEST CORNER OF THE NORTH HALF OF THE FARWELL RANCHO, (SOMETIMES CALLED FAREWELL RANCHO) CONFIRMED TO JAMES WILLIAMS, MARIA L. CARSON AND JOHN S. WILLIAMS IN THE YEAR 1857; RUNNING THENCE NORTH 71 DEG. 46' EAST ALONG THE LINE DIVIDING THE SAID NORTH HALF FROM THE SOUTH HALF OF SAID RANCHO 284.15 CHAINS, MORE OR

LESS, TO A POINT ON SAID LINE DISTANT THEREON 52.35 CHAINS SOUTHWEST FROM THE SOUTHWEST CORNER OF THE DANISH TRACT AND 38.42 CHAINS SOUTHWEST THEREON FROM THE CENTRAL NORTH AND SOUTH LINE OF SECTION 18, TOWNSHIP 21 NORTH, RANGE 1 EAST, M.D.B. & M.; THENCE NORTH 133.78 CHAINS, MORE OR LESS, TO THE ROAD LEADING FROM CHICO TO CHICO LANDING; THENCE ALONG SAID ROAD NORTH 71 DEG. 45' EAST TO THE SOUTHEAST CORNER OF LOT 4 OF SAID DANISH TRACT AND THENCE NORTH 18 DEG. 04' EAST, 124 CHAINS, MORE OR LESS, TO THE POINT OF COMMENCEMENT, BEING A PORTION OF SAID NORTH HALF OF THE SAID RANCHO DE FARWELL (SOMETIMES CALLED RANCHO DE FARWELL).

ALSO EXCEPTING THEREFROM THAT PORTION OF LAND IN SECTION 12, TOWNSHIP 21 NORTH, RANGE 1 WEST, M.D.B. & M., AS DESCRIBED IN DEED FROM M & T, INCORPORATED, A CORPORATION, TO COUNTY OF BUTTE, DATED JUNE 20, 1940 AND RECORDED JULY 3, 1940, IN BOOK 86, PAGE 427, OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM THAT PORTION DESCRIBED AS FOLLOWS:

ALL THAT PORTION OF "PARCEL 4" AND "PARCEL 5" DESCRIBED IN CORPORATION GRANT DEED RECORDED MARCH 6, 1985, UNDER BUTTE COUNTY RECORDER'S SERIAL NO. 85-06400, LYING IN THE RANCHO DE FARWELL AND IN PROJECTED SECTIONS 14, 15, 16, 21, 22 AND 23, TOWNSHIP 21 NORTH, RANGE 1 WEST, M.D.B. & M., DESCRIBED AS FOLLOWS:

BEGINNING AT A 7 INCH BY 8 INCH GRANITE MONUMENT SHOWN AS STATION 13, BEING THE WESTERLY TERMINUS OF THAT COURSE SHOWN AS "S89-26-00W 2644.4" IN COLUMN "L3 - CHICO CREEK", ON THAT CERTAIN MAP ENTITLED, "PHELAN RANCH", WHICH MAP WAS RECORDED IN THE OFFICE OF THE RECORDER OF THE COUNTY OF BUTTE, STATE OF CALIFORNIA, ON JULY 8, 1929, IN BOOK "A" OF MAPS, AT PAGE(S) 12A, SAID GRANITE MONUMENT BEARS SOUTH 89 DEG. 52' 23" EAST 2643.43 FEET FROM ANOTHER 7 INCH BY 8 INCH GRANITE MONUMENT SHOWN AS STATION 12 ON SAID MAP; THENCE FROM SAID POINT OF BEGINNING ALONG THE LAST MENTIONED COURSE SOUTH 89 DEG. 52' 23" EAST 962.63 FEET TO A 3/4 INCH IRON PIPE WITH ALUMINUM PLUG STAMPED D.W.R.; THENCE ALONG THE EASTERLY LINE OF THE HEREIN DESCRIBED PARCEL NORTH 00 DEG. 23' 13" EAST 918.63 FEET TO A POINT MARKED BY A 3/4 INCH IRON PIPE WITH ALUMINUM PLUG STAMPED D.W.R., HEREIN DESIGNATED POINT "A"; THENCE ALONG SAID EASTERLY LINE THE FOLLOWING 59 COURSES:

(1) NORTH 00 DEG. 23' 13" EAST 61.49 FEET;
(2) NORTH 89 DEG. 36' 47" WEST 245.79 FEET;
(3) NORTH 00 DEG. 23' 13" EAST 262.14 FEET;
(4) NORTH 11 DEG. 18' 11" EAST 215.44 FEET;
(5) NORTH 33 DEG. 02' 20" EAST 156.17 FEET;
(6) NORTH 65 DEG. 08' 14" EAST 305.25 FEET;
(7) NORTH 60 DEG. 07' 38" EAST 317.99 FEET;
(8) NORTH 52 DEG. 36' 56" EAST 140.60 FEET;
(9) NORTH 51 DEG. 25' 21" EAST 306.81 FEET;
(10) NORTH 35 DEG. 58' 10" EAST 424.81 FEET;
(11) NORTH 03 DEG. 32' 08" EAST 232.74 FEET;
(12) NORTH 18 DEG. 19' 09" WEST 64.39 FEET;
(13) SOUTH 75 DEG. 48' 42" WEST 50.13 FEET;
(14) NORTH 10 DEG. 03' 27" WEST 81.80 FEET;
(15) NORTH 10 DEG. 30' 51" WEST 172.21 FEET TO A POINT THAT BEARS SOUTH 64 DEG. 37' 17" WEST 103.46 FEET FROM A 3/4 INCH IRON PIPE WITH ALUMINUM PLUG STAMPED D.W.R.;
(16) NORTH 40 DEG. 14' 35" WEST 1371.83 FEET;
(17) NORTH 28 DEG. 02' 18" WEST 241.13 FEET;
(18) NORTH 21 DEG. 14' 14" WEST 132.06 FEET;
(19) NORTH 47 DEG. 10' 03" WEST 264.24 FEET;

(20) NORTH 77 DEG. 59' 49" WEST 120.79 FEET;
(21) NORTH 55 DEG. 57' 01" WEST 268.71 FEET;
(22) NORTH 38 DEG. 30' 01" WEST 916.18 FEET TO A RAILROAD SPIKE MARKED "X";
(23) NORTH 16 DEG. 01' 19" EAST 122.80 FEET TO A POINT MARKED BY A 3/4 INCH IRON PIPE WITH ALUMINUM PLUG STAMPED D.W.R., HEREIN DESIGNATED POINT "B";
(24) NORTH 73 DEG. 58' 41" WEST 112.50 FEET;
(25) SOUTH 16 DEG. 01' 19" WEST 306.99 FEET;
(26) SOUTH 36 DEG. 04' 02" WEST 303.66 FEET;
(27) SOUTH 43 DEG. 17' 34" WEST 201.55 FEET;
(28) SOUTH 56 DEG. 04' 12" WEST 254.22 FEET;
(29) SOUTH 64 DEG. 37' 54" WEST 272.61 FEET;
(30) SOUTH 71 DEG. 20' 45" WEST 168.08 FEET;
(31) SOUTH 73 DEG. 57' 53" WEST 631.09 FEET;
(32) SOUTH 71 DEG. 13' 59" WEST 360.28 FEET;
(33) SOUTH 58 DEG. 49' 55" WEST 460.82 FEET;
(34) SOUTH 37 DEG. 07' 36" WEST 298.10 FEET;
(35) SOUTH 24 DEG. 10' 56" WEST 128.50 FEET;
(36) SOUTH 22 DEG. 41' 29" WEST 283.24 FEET;
(37) SOUTH 33 DEG. 57' 20" WEST 243.70 FEET;
(38) SOUTH 44 DEG. 51' 39" WEST 119.86 FEET;
(39) SOUTH 56 DEG. 04' 46" WEST 735.67 FEET;
(40) SOUTH 53 DEG. 41' 57" WEST 424.81 FEET;
(41) SOUTH 70 DEG. 53' 19" WEST 264.27 FEET;
(42) SOUTH 81 DEG. 37' 31" WEST 359.26 FEET;
(43) SOUTH 79 DEG. 53' 44" WEST 803.94 FEET;
(44) NORTH 89 DEG. 31' 05" WEST 351.90 FEET;
(45) NORTH 67 DEG. 41' 07" WEST 321.40 FEET;
(46) NORTH 54 DEG. 25' 35" WEST 72.37 FEET;
(47) NORTH 32 DEG. 20' 38" WEST 163.22 FEET;
(48) NORTH 09 DEG. 39' 06" WEST 159.10 FEET;
(49) NORTH 17 DEG. 54' 34" WEST 306.93 FEET;
(50) NORTH 25 DEG. 37' 12" WEST 478.51 FEET;
(51) NORTH 18 DEG. 19' 29" WEST 119.67 FEET;
(52) NORTH 08 DEG. 45' 27" WEST 391.59 FEET;
(53) NORTH 19 DEG. 48' 56" WEST 306.93 FEET;
(54) NORTH 37 DEG. 25' 35" WEST 408.54 FEET;
(55) NORTH 40 DEG. 20' 24" WEST 312.62 FEET;
(56) NORTH 42 DEG. 34' 38" WEST 201.28 FEET;
(57) NORTH 39 DEG. 39' 47" EAST 69.23 FEET;
(58) NORTH 32 DEG. 33' 47" EAST 197.51 FEET; AND
(59) NORTH 57 DEG. 52' 20" EAST 410.85 FEET TO THE LEFT BANK OF THE SACRAMENTO RIVER; THENCE DOWNSTREAM ALONG SAID LEFT BANK 2079 FEET; THENCE LEAVING SAID LEFT BANK SOUTH 05 DEG. 03' 46" EAST 553.66 FEET TO A RAILROAD SPIKE MARKED WITH AN "X" IN A FENCE LINE, WHICH BEARS NORTH 20 DEG. 23' 36" WEST 2991.79 FEET FROM A 3/4 INCH IRON PIPE WITH PLASTIC PLUG STAMPED D.W.R., SAID RAILROAD SPIKE HEREIN DESIGNATED POINT "C"; THENCE CONTINUING, SOUTH 05 DEG. 03' 46" EAST 2488.05 FEET TO A 4 INCH GATE POST AND SOUTH 05 DEG. 03' 46" EAST 174.13 FEET TO THE LEFT BANK OF SAID SACRAMENTO RIVER; THENCE DOWNSTREAM ALONG SAID LEFT BANK 3327 FEET TO THE LINE DIVIDING THE NORTH HALF FROM THE SOUTH HALF OF SAID RANCHO, SAID LINE BEING ALSO THE SOUTHERLY LINE OF SAID "PARCEL 4"; THENCE LEAVING SAID LEFT BANK ALONG SAID SOUTHERLY LINE NORTH 71 DEG. 32' 42" EAST 6374.80 FEET TO THE NORTHWEST CORNER OF SAID "PARCEL 5", SAID NORTHWEST CORNER ALSO BEING STATION 14 AS SHOWN ON SAID MAP; THENCE LEAVING SAID SOUTHERLY LINE ALONG THE MOST WESTERLY LINE OF SAID "PARCEL 5", SOUTH 00 DEG. 14' 37" EAST 2118.00 FEET TO THE POINT

OF BEGINNING.

AS CONVEYED TO THE SACRAMENTO AND SAN JOAQUIN DRAINAGE DISTRICT, BY GRANT DEED RECORDED MARCH 30, 1988, SERIAL NO. 88-9990.

APNS 039-530-001 AND 011 AND 039-530-018 (PORTION)

PARCEL IV-B:

AN EASEMENT WITH THE RIGHT OF INGRESS AND EGRESS OVER AND ACROSS AN EXISTING ROAD BEING 60 FEET IN WIDTH. THE CENTERLINE BEING DESCRIBED IN THE DEED RECORDED MARCH 30, 1988, UNDER BUTTE COUNTY RECORDER'S SERIAL NO. 88-09990.

PARCEL V:

THAT PORTION OF THE FARWELL RANCHO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF LAND NOW OR FORMERLY OF E. CROUCH THE SAID CORNER BEING AT THE POINT OF INTERSECTION OF THE AFORESAID LINE DIVIDING THE NORTH HALF OF SAID FARWELL RANCHO (SOMETIMES CALLED FAREWELL RANCHO), FROM THE SOUTH HALF THEREOF, WITH THE CENTRAL NORTH AND SOUTH LINE OF SECTION 18, TOWNSHIP 21 NORTH, RANGE 1 EAST, M.D.B. & M.; THENCE SOUTH 130 CHAINS TO THE SOUTH LINE OF SECTION 19 OF SAID TOWNSHIP AND RANGE; THENCE WEST 60 CHAINS; THENCE SOUTH 80 CHAINS; THENCE WEST 50 CHAINS; THENCE SOUTH 39 CHAINS TO THE SOUTH LINE OF SAID FARWELL RANCHO (SOMETIMES CALLED FAREWELL RANCHO); THENCE SOUTH 71 DEG. 46' WEST 10 CHAINS TO THE INTERSECTION OF SAID SOUTH LINE WITH THE WEST LINE OF SECTION 36, TOWNSHIP 21 NORTH, RANGE 1 WEST, M.D.B. & M.; THENCE NORTH 165 CHAINS, MORE OR LESS, TO A POINT 16 RODS NORTH OF THE QUARTER SECTION LINE OF SECTION 23, TOWNSHIP 21 NORTH, RANGE 1 WEST, M.D.B. & M.; THENCE WEST 40 CHAINS; THENCE NORTH TO THE AFORESAID LINE DIVIDING THE NORTH HALF OF SAID RANCHO DE FARWELL, (SOMETIMES CALLED RANCHO DE FAREWELL) FROM THE SOUTH HALF THEREOF AND THENCE ALONG SAID LINE NORTH 71 DEG. 46' EAST TO THE POINT OF COMMENCEMENT, BEING A PORTION OF THE SAID RANCHO DE FARWELL, (SOMETIMES CALLED RANCHO DE FAREWELL).

EXCEPTING THEREFROM THE FOLLOWING DESCRIBED PARCEL OF LAND:

BEGINNING AT A POINT IN THE EASTERLY BOUNDARY LINE OF THE COUNTY ROAD KNOWN AS FELL ROAD FROM WHICH THE SOUTHEAST CORNER (MARKED BY AN INTERSECTION OF FENCES NOW UPON THE GROUND) OF THAT CERTAIN PARCEL OF LAND CONVEYED BY FRED D. COON AND ANOTHER TO FRED D. COON AND ANOTHER, BY DEED DATED JUNE 11, 1956 AND RECORDED IN BOOK 833, PAGE 554, OFFICIAL RECORDS, BEARS SOUTH 1 DEG. 09 1/2' WEST, 4478.2 FEET DISTANT AND RUNNING THENCE NORTH, ALONG THE EASTERLY BOUNDARY LINE OF SAID FELL ROAD, 150 FEET; THENCE EAST 100.0 FEET; THENCE SOUTH PARALLEL WITH THE EASTERLY BOUNDARY LINE OF SAID FELL ROAD, 150.0 FEET; THENCE WEST 100.0 FEET TO THE POINT OF BEGINNING.

ALSO EXCEPTING THEREFROM THAT PORTION DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE EASTERLY BOUNDARY LINE OF THE COUNTY ROAD KNOWN AS RIVER ROAD (FORMERLY FELL ROAD) FROM WHICH THE SOUTHEAST CORNER (MARKED BY AN INTERSECTION OF FENCES NOW UPON THE GROUND) OF THAT CERTAIN PARCEL OF LAND CONVEYED BY FRED D. COON AND ANOTHER TO FRED D. COON AND ANOTHER BY DEED DATED JUNE 11, 1956 AND RECORDED IN BOOK 833, PAGE 554, OFFICIAL RECORDS, BEARS SOUTH 1 DEG. 03' 1/2" WEST, 4,478.20 FEET DISTANT AND RUNNING FROM SAID POINT OF BEGINNING SOUTH, ALONG THE

EASTERLY BOUNDARY LINE OF SAID RIVER ROAD 100 FEET; THENCE EAST 100 FEET; THENCE NORTH AND PARALLEL WITH THE EASTERLY BOUNDARY LINE OF SAID RIVER ROAD 100 FEET TO THE SOUTH LINE OF THE CERTAIN PARCEL OF LAND CONVEYED BY M & T, INCORPORATED TO PACIFIC GAS AND ELECTRIC COMPANY BY DEED DATED NOVEMBER 9, 1956 AND RECORDED IN BOOK 859, PAGE 73, OFFICIAL RECORDS; THENCE WEST ALONG SAID ABOVE MENTIONED LINE 100 FEET TO THE POINT OF BEGINNING.

ALSO EXCEPTING THEREFROM ALL THAT PORTION OF "PARCEL 4" AND "PARCEL 5" DESCRIBED IN CORPORATION GRANT DEED RECORDED MARCH 6, 1985, UNDER BUTTE COUNTY RECORDER'S SERIAL NO. 85-06400, LYING IN THE RANCHO DE FARWELL AND IN PROJECTED SECTIONS 14, 15, 16, 21, 22 AND 23, TOWNSHIP 21 NORTH, RANGE 1 WEST, M.D.B. & M., DESCRIBED AS FOLLOWS:

BEGINNING AT A 7 INCH BY 8 INCH GRANITE MONUMENT SHOWN AS STATION 13, BEING THE WESTERLY TERMINUS OF THAT COURSE SHOWN AS "S89-26-00W 2644.4" IN COLUMN "L3 - CHICO CREEK", ON THAT CERTAIN MAP ENTITLED, "PHELAN RANCH", WHICH MAP WAS RECORDED IN THE OFFICE OF THE RECORDER OF THE COUNTY OF BUTTE, STATE OF CALIFORNIA, ON JULY 8, 1929, IN BOOK "A" OF MAPS, AT PAGE(S) 12A, SAID GRANITE MONUMENT BEARS SOUTH 89 DEG. 52' 23" EAST 2643.43 FEET FROM ANOTHER 7 INCH BY 8 INCH GRANITE MONUMENT SHOWN AS STATION 12 ON SAID MAP; THENCE FROM SAID POINT OF BEGINNING ALONG THE LAST MENTIONED COURSE SOUTH 89 DEG. 52' 23" EAST 962.63 FEET TO A 3/4 INCH IRON PIPE WITH ALUMINUM PLUG STAMPED D.W.R.; THENCE ALONG THE EASTERLY LINE OF THE HEREIN DESCRIBED PARCEL NORTH 00 DEG. 23' 13" EAST 918.63 FEET TO A POINT MARKED BY A 3/4 INCH IRON PIPE WITH ALUMINUM PLUG STAMPED D.W.R., HEREIN DESIGNATED POINT "A"; THENCE ALONG SAID EASTERLY LINE THE FOLLOWING 59 COURSES:

(1) NORTH 00 DEG. 23' 13" EAST 61.49 FEET;
(2) NORTH 89 DEG. 36' 47" WEST 245.79 FEET;
(3) NORTH 00 DEG. 23' 13" EAST 262.14 FEET;
(4) NORTH 11 DEG. 18' 11" EAST 215.44 FEET;
(5) NORTH 33 DEG. 02' 20" EAST 156.17 FEET;
(6) NORTH 65 DEG. 08' 14" EAST 305.25 FEET;
(7) NORTH 60 DEG. 07' 38" EAST 317.99 FEET;
(8) NORTH 52 DEG. 36' 56" EAST 140.60 FEET;
(9) NORTH 51 DEG. 25' 21" EAST 306.81 FEET;
(10) NORTH 35 DEG. 58' 10" EAST 424.81 FEET;
(11) NORTH 03 DEG. 32' 08" EAST 232.74 FEET;
(12) NORTH 18 DEG. 19' 09" WEST 64.39 FEET;
(13) SOUTH 75 DEG. 48' 42" WEST 50.13 FEET;
(14) NORTH 10 DEG. 03' 27" WEST 81.80 FEET;
(15) NORTH 10 DEG. 30' 51" WEST 172.21 FEET TO A POINT THAT BEARS SOUTH 64 DEG. 37' 17" WEST 103.46 FEET FROM A 3/4 INCH IRON PIPE WITH ALUMINUM PLUG STAMPED D.W.R.;
(16) NORTH 40 DEG. 14' 35" WEST 1371.83 FEET;
(17) NORTH 28 DEG. 02' 18" WEST 241.13 FEET;
(18) NORTH 21 DEG. 14' 14" WEST 132.06 FEET;
(19) NORTH 47 DEG. 10' 03" WEST 264.24 FEET;
(20) NORTH 77 DEG. 59' 49" WEST 120.79 FEET;
(21) NORTH 55 DEG. 57' 01" WEST 268.71 FEET;
(22) NORTH 38 DEG. 30' 01" WEST 916.18 FEET TO A RAILROAD SPIKE MARKED "X";
(23) NORTH 16 DEG. 01' 19" EAST 122.80 FEET TO A POINT MARKED BY A 3/4 INCH IRON PIPE WITH ALUMINUM PLUG STAMPED D.W.R., HEREIN DESIGNATED POINT "B";
(24) NORTH 73 DEG. 58' 41" WEST 112.50 FEET;
(25) SOUTH 16 DEG. 01' 19" WEST 306.99 FEET;
(26) SOUTH 36 DEG. 04' 02" WEST 303.66 FEET;
(27) SOUTH 43 DEG. 17' 34" WEST 201.55 FEET;

(28) SOUTH 56 DEG. 04' 12" WEST 254.22 FEET;
(29) SOUTH 64 DEG. 37' 54" WEST 272.61 FEET;
(30) SOUTH 71 DEG. 20' 45" WEST 168.08 FEET;
(31) SOUTH 73 DEG. 57' 53" WEST 631.09 FEET;
(32) SOUTH 71 DEG. 13' 59" WEST 360.28 FEET;
(33) SOUTH 58 DEG. 49' 55" WEST 460.82 FEET;
(34) SOUTH 37 DEG. 07' 36" WEST 298.10 FEET;
(35) SOUTH 24 DEG. 10' 56" WEST 128.50 FEET;
(36) SOUTH 22 DEG. 41' 29" WEST 283.24 FEET;
(37) SOUTH 33 DEG. 57' 20" WEST 243.70 FEET;
(38) SOUTH 44 DEG. 51' 39" WEST 119.86 FEET;
(39) SOUTH 56 DEG. 04' 46" WEST 735.67 FEET;
(40) SOUTH 53 DEG. 41' 57" WEST 424.81 FEET;
(41) SOUTH 70 DEG. 53' 19" WEST 264.27 FEET;
(42) SOUTH 81 DEG. 37' 31" WEST 359.26 FEET;
(43) SOUTH 79 DEG. 53' 44" WEST 803.94 FEET;
(44) NORTH 89 DEG. 31' 05" WEST 351.90 FEET;
(45) NORTH 67 DEG. 41' 07" WEST 321.40 FEET;
(46) NORTH 54 DEG. 25' 35" WEST 72.37 FEET;
(47) NORTH 32 DEG. 20' 38" WEST 163.22 FEET;
(48) NORTH 09 DEG. 39' 06" WEST 159.10 FEET;
(49) NORTH 17 DEG. 54' 34" WEST 306.93 FEET;
(50) NORTH 25 DEG. 37' 12" WEST 478.51 FEET;
(51) NORTH 18 DEG. 19' 29" WEST 119.67 FEET;
(52) NORTH 08 DEG. 45' 27" WEST 391.59 FEET;
(53) NORTH 19 DEG. 48' 56" WEST 306.93 FEET;
(54) NORTH 37 DEG. 25' 35" WEST 408.54 FEET;
(55) NORTH 40 DEG. 20' 24" WEST 312.62 FEET;
(56) NORTH 42 DEG. 34' 38" WEST 201.28 FEET;
(57) NORTH 39 DEG. 39' 47" EAST 69.23 FEET;
(58) NORTH 32 DEG. 33' 47" EAST 197.51 FEET; AND
(59) NORTH 57 DEG. 52' 20" EAST 410.85 FEET TO THE LEFT BANK OF THE SACRAMENTO RIVER; THENCE DOWNSTREAM ALONG SAID LEFT BANK 2079 FEET; THENCE LEAVING SAID LEFT BANK SOUTH 05 DEG. 03' 46" EAST 553.66 FEET TO A RAILROAD SPIKE MARKED WITH AN "X" IN A FENCE LINE, WHICH BEARS NORTH 20 DEG. 23' 36" WEST 2991.79 FEET FROM A 3/4 INCH IRON PIPE WITH PLASTIC PLUG STAMPED D.W.R., SAID RAILROAD SPIKE HEREIN DESIGNATED POINT "C"; THENCE CONTINUING, SOUTH 05 DEG. 03' 46" EAST 2488.05 FEET TO A 4 INCH GATE POST AND SOUTH 05 DEG. 03' 46" EAST 174.13 FEET TO THE LEFT BANK OF SAID SACRAMENTO RIVER; THENCE DOWNSTREAM ALONG SAID LEFT BANK 3327 FEET TO THE LINE DIVIDING THE NORTH HALF FROM THE SOUTH HALF OF SAID RANCHO, SAID LINE BEING ALSO THE SOUTHERLY LINE OF SAID "PARCEL 4"; THENCE LEAVING SAID LEFT BANK ALONG SAID SOUTHERLY LINE NORTH 71 DEG. 32' 42" EAST 6374.80 FEET TO THE NORTHWEST CORNER OF SAID "PARCEL 5", SAID NORTHWEST CORNER ALSO BEING STATION 14 AS SHOWN ON SAID MAP; THENCE LEAVING SAID SOUTHERLY LINE ALONG THE MOST WESTERLY LINE OF SAID "PARCEL 5", SOUTH 00 DEG. 14' 37" EAST 2118.00 FEET TO THE POINT OF BEGINNING.

AS CONVEYED TO THE SACRAMENTO AND SAN JOAQUIN DRAINAGE DISTRICT, BY GRANT DEED RECORDED MARCH 30, 1988, SERIAL NO. 88-9990.

APNS 039-530-004 (PORTION); 039-530-006; 039-530-017; 039-530-018 (PORTION); 039-530-023; 039-530-024 (PORTION); 039-530-025 AND 039-530-026

PARCEL VI:

LOTS 7, 8, 9, 10, 11 AND 12, AS SHOWN ON THAT CERTAIN MAP ENTITLED, "NOBLE & WATKINS SUBDIVISION", WHICH MAP WAS RECORDED IN THE OFFICE OF THE RECORDER OF THE COUNTY OF BUTTE, STATE OF CALIFORNIA, ON SEPTEMBER 20, 1910, IN BOOK 7 OF MAPS, AT PAGE(S) 17.

APN 039-530-004 (PORTION)

PARCEL VII:

BEING A PORTION OF PROJECTED SECTION 36, TOWNSHIP 21 NORTH, RANGE 1 WEST, M.D.B. & M., LYING WITHIN RANCHO DE FARWELL, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE SOUTHERLY LINE OF SAID RANCHO DE FARWELL, FROM WHICH POINT THE INTERSECTION OF SAID SOUTHERLY LINE WITH THE NORTH AND SOUTH CENTERLINE OF SECTION 31, TOWNSHIP 21 NORTH, RANGE 1 EAST, M.D.B. & M., BEARS NORTH 70 DEG. 36' EAST, 6555.1 FEET, SAID POINT BEING THE SOUTHWEST CORNER OF THAT CERTAIN PARCEL DESCRIBED AS PARCEL 6, IN DEED FROM HELEN SCHWEIN TO CASLYN L. SCHWEIN, DATED NOVEMBER 2, 1950 AND RECORDED NOVEMBER 8, 1950, IN BOOK 554, PAGE 89, OFFICIAL RECORDS; THENCE FROM SAID POINT OF BEGINNING, ALONG THE WESTERLY LINE OF SAID SCHWEIN PARCEL, NORTH 10 DEG. 43' WEST, 1257.0 FEET AND NORTH 2 DEG. 03' WEST, 1180.5 FEET, MORE OR LESS, TO A POINT IN THE NORTH LINE OF SECTION 36, BEING ON THE BOUNDARY LINE OF THAT CERTAIN PARCEL OF LAND, AS DESCRIBED AS PARCEL 2, IN DEED FROM ALICE PHELAN SULLIVAN CORPORATION TO M & T, INCORPORATED, A CORPORATION, DATED JUNE 13, 1935 AND RECORDED JUNE 27, 1935, IN BOOK 147, PAGE 255, OFFICIAL RECORDS; THENCE WEST, ALONG SAID LINE 807.60 FEET TO AN ANGLE POINT IN SAID PROPERTY LINE; THENCE SOUTH ALONG THE EAST LINE OF THE MOST SOUTHERLY PORTION OF SAID M & T, INCORPORATED PARCEL, A DISTANCE OF 2796.4 FEET, MORE OR LESS, TO A POINT IN THE SOUTHERLY LINE OF SAID RANCHO DE FARWELL; THENCE ALONG SAID SOUTHERLY LINE, NORTH 70 DEG. 36' EAST, 1148.8 FEET TO THE POINT OF BEGINNING.

APN 039-530-024 (PORTION)

PARCEL VIII:

AN UNDIVIDED 1/2 INTEREST IN THE FOLLOWING DESCRIBED PARCEL:

A PART OF THE RANCHO DE FARWELL, BEING LOCATED IN PROJECTED SECTION 18, TOWNSHIP 21 NORTH, RANGE 1 EAST, M.D.B. & M., BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A CONCRETE MONUMENT ON THE SOUTHERLY BANK OF EDGAR SLOUGH AND BEING ON THE EASTERLY LINE OF THE M & T RANCH (FORMERLY KNOWN AS THE PHELAN RANCH), SAID POINT BEING ALSO THE NORTHWESTERLY CORNER OF THAT CERTAIN PARCEL OF LAND DEEDED TO W. G. STEVENS BY MAUDE C. MADRILL AND J. W. MADRILL AND RECORDED IN BOOK 220 OF DEEDS, PAGE 346, BUTTE COUNTY RECORDS; RUNNING THENCE FROM SAID POINT OF BEGINNING, SOUTH 1 DEG. 00' WEST, 1684.0 FEET TO A POINT 79.5 FEET NORTH OF THE SOUTHWEST CORNER OF THE AFORESAID TRACT OF LAND; THENCE LEAVING THE SAID M & T LINE AND RUNNING SOUTH 89 DEG. 00' EAST, A DISTANCE OF 600 FEET; RUNNING THENCE NORTH 1 DEG. 00' EAST, PARALLEL TO THE SAID M & T LINE, A DISTANCE OF 2219.6 FEET TO A POINT ON THE SOUTHERLY BANK OF SAID EDGAR SLOUGH, SAID POINT BEING ALSO ON THE NORTHERLY LINE OF THE SAID TRACT OF LAND; RUNNING THENCE ALONG SAID LINE SOUTH 49 DEG. 46' WEST, A DISTANCE OF 321.1 FEET; SOUTH 48 DEG. 54' WEST, 483.2 FEET TO THE POINT OF BEGINNING.

APN 039-530-005

PARCEL IX:

AN UNDIVIDED 1/2 INTEREST IN THE FOLLOWING DESCRIBED PARCEL:

A PORTION OF LOT 1 OF SECTION 4, TOWNSHIP 21 NORTH, RANGE 2 EAST, M.D.B. & M., LYING BETWEEN THE CENTER OF OLD CHICO-CENTERVILLE COUNTY ROAD AND THE CENTERLINE OF BUTTE CREEK, AS IT EXISTED IN 1884 AND 1885 IN BUTTE COUNTY, STATE OF CALIFORNIA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE SECTION LINE BETWEEN 4 AND 3, FROM WHICH POINT THE NORTHEAST CORNER OF SECTION 4 BEARS NORTH 0 DEG. 03' WEST, 521.4 FEET; SAID POINT OF BEGINNING BEING ALSO IN THE CHICO-CENTERVILLE COUNTY ROAD; THENCE CONTINUING ALONG SAID EAST LINE OF SECTION 4, SOUTH 0 DEG. 03' EAST 217.6 FEET TO THE CENTER OF BUTTE CREEK AS IT EXISTED IN 1884 AND 1885; THENCE FOLLOWING SAID OLD BUTTE CREEK CHANNEL SOUTH 53 DEG. 55' WEST, 216.0 FEET; SOUTH 56 DEG. 40' WEST, 425.0 FEET; SOUTH 53 DEG. 50' WEST, 175.0 FEET; SOUTH 62 DEG. 10' WEST, 44.12 FEET TO THE SOUTH LINE OF LOT 1 OF SAID SECTION 4; THENCE LEAVING THE SAID OLD CREEK CHANNEL AND CONTINUING ALONG SAID LOT LINE, SOUTH 89 DEG. 57' WEST, 309.14 FEET; THENCE NORTH 18 DEG. 55' WEST, 294.05 FEET ALONG THE CENTER OF AN OLD EXISTING LEVEE ROAD TO ITS INTERSECTION WITH THE OLD CHICO-CENTERVILLE COUNTY ROAD; THENCE CONTINUING ALONG THE SAID ROAD NORTH 68 DEG. 49' EAST, 146.1 FEET; NORTH 53 DEG. 33' EAST 65.9 FEET; NORTH 65 DEG. 31' EAST, 100.0 FEET; NORTH 82 DEG. 54' EAST, 197.9 FEET; NORTH 77 DEG. 26' EAST, 128.5 FEET; NORTH 85 DEG. 05' EAST, 195.5 FEET; SOUTH 73 DEG. 00' EAST, 71.0 FEET; NORTH 46 DEG. 46' EAST, 354.08 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM ALL MINERALS, STONE, SAND AND PRECIOUS STONES AS CONVEYED TO JOHNSON ROCK CO., INC., BY DONALD HALE, ET UX, IN DEED RECORDED APRIL 1, 1957, IN BOOK 179, PAGE 265, OFFICIAL RECORDS.

APN 017-260-143 (PORTION)

PARCEL X:

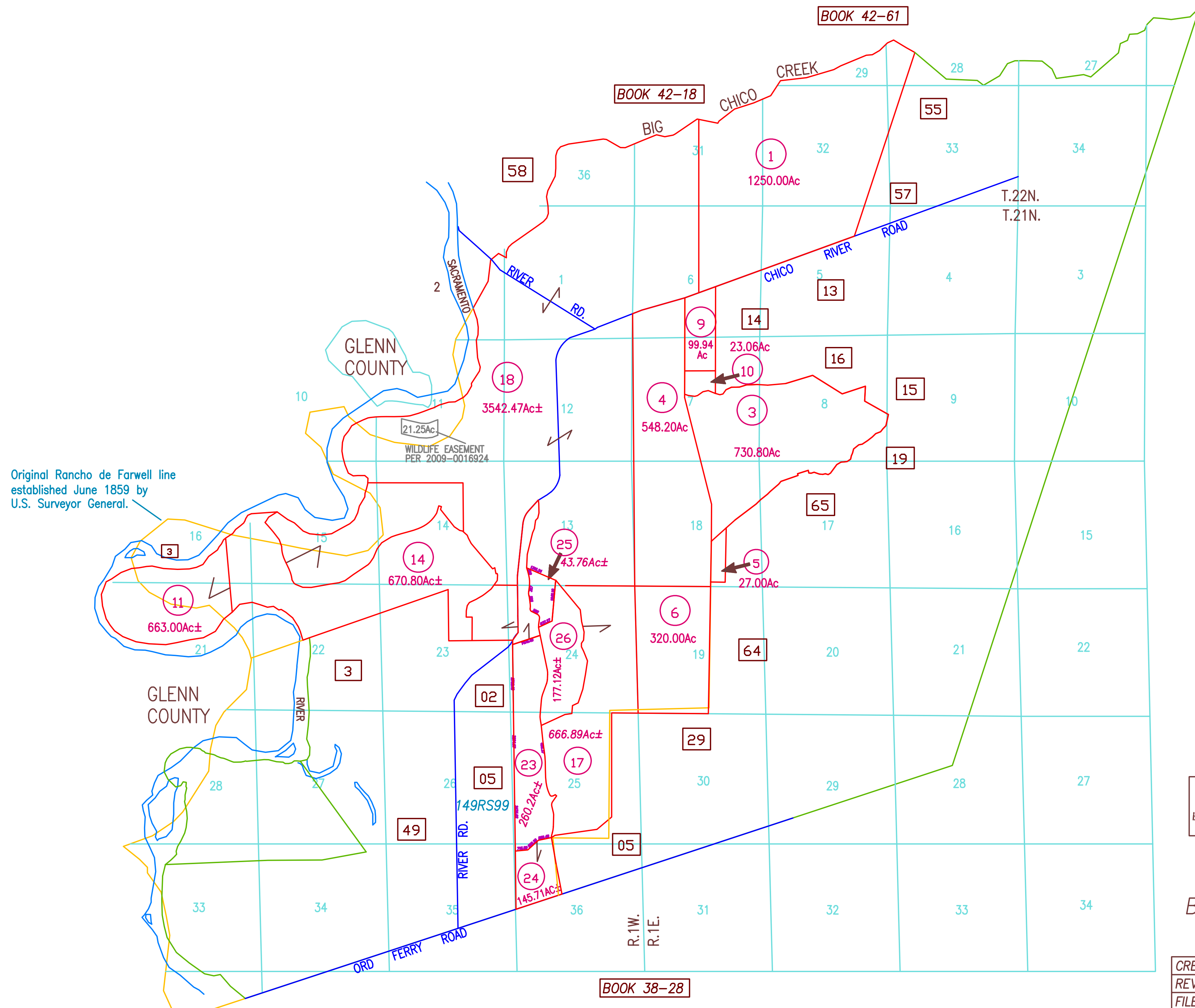
AN UNDIVIDED 1/2 INTEREST IN THE FOLLOWING DESCRIBED PARCEL:

BEGINNING AT A POINT ON THE EASTERLY LINE OF SECTION 4, TOWNSHIP 21 NORTH, RANGE 2 EAST, M.D.B. & M., BEING SOUTH 0 DEG. 03' EAST, 739.0 FEET FROM THE NORTHEAST CORNER OF SAID SECTION 4; THENCE SOUTH 53 DEG. 55' WEST, 216.0 FEET ALONG THE CENTERLINE OF BUTTE CREEK, AS IT EXISTED IN 1884 AND 1885; THENCE CONTINUING ALONG SAID CENTERLINE OF BUTTE CREEK, AS IT EXISTED IN 1884 AND 1885, THE FOLLOWING 3 COURSES AND DISTANCES: SOUTH 56 DEG. 40' WEST 425.0 FEET; SOUTH 53 DEG. 50' WEST, 175.0 FEET, SOUTH 65 DEG. 10' WEST, 44.12 FEET TO THE SOUTHERLY LINE OF LOT 1 OF SAID SECTION 4; THENCE NORTH 89 DEG. 57' EAST 718.85 FEET ALONG SAID SOUTHERLY LINE TO THE SOUTHEAST CORNER OF SAID LOT 1; THENCE NORTH 0 DEG. 03' WEST, 484.0 FEET ALONG THE EASTERLY LINE OF SAID LOT 1 AND SAID SECTION 4, TO THE POINT OF BEGINNING.

APN 017-260-143 (PORTION)

TOTAL APNS: 017-260-143; 039-530-001, 003, 004, 005, 006, 011, 017, 018; 039-530-023; 039-530-024; 039-530-025; AND 039-530-026

1"=5280'

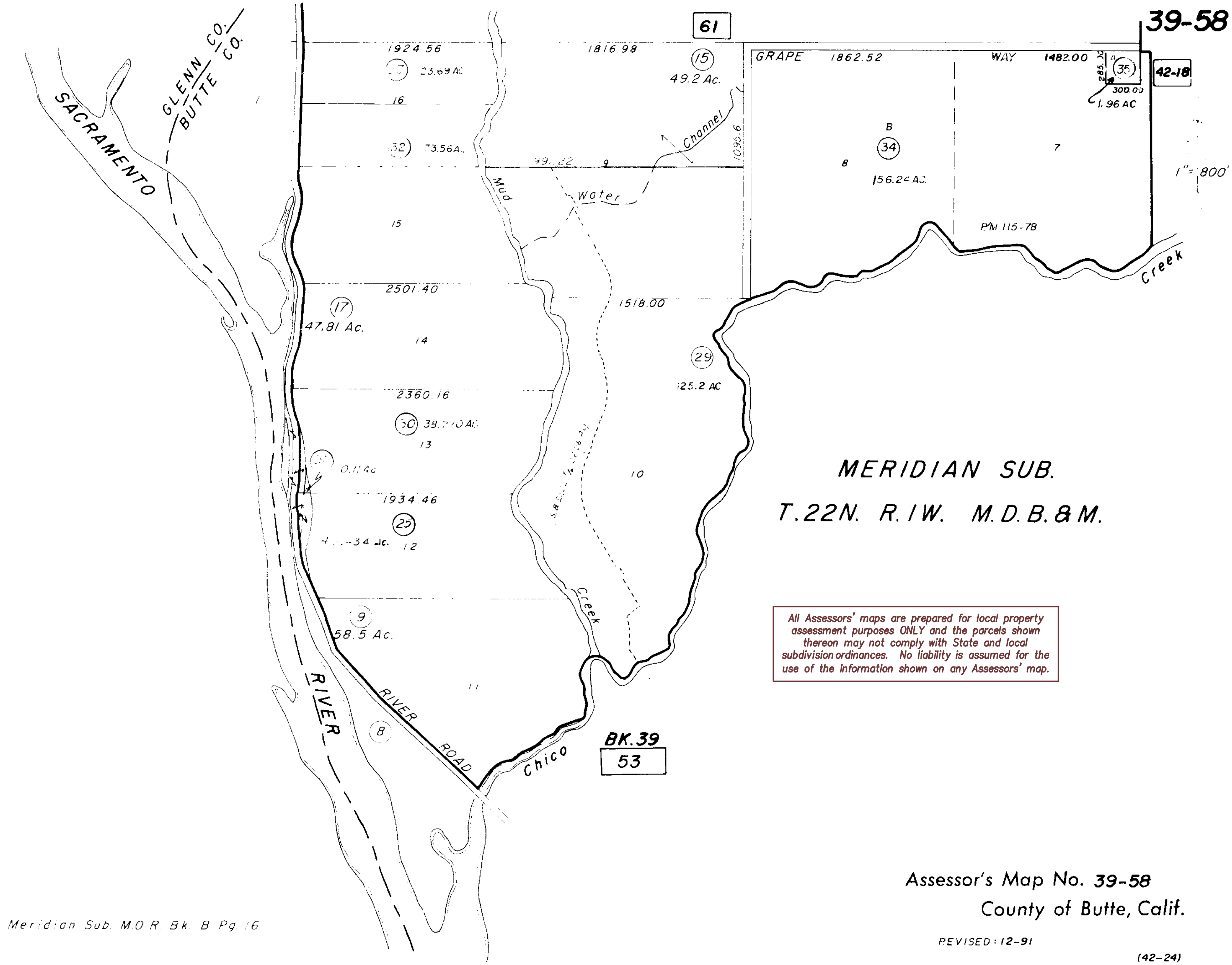



All Assessors' maps are prepared for local property assessment purposes ONLY. Parcels shown thereon may not comply with State and local subdivision ordinances. No liability is assumed for use of information shown on any Assessors' map. ALL ACREAGES APPROXIMATE PER RECORDED INFORMATION.

Butte County Assessor's Map
Book 39, Page 53

| | |
|---|---|
| CREATED BY | CREATED ON 12–2002 |
| REVISED BY DB | REVISED ON 08–31–2009 |
| FILE NAME 39–53 | EFFECTIVE 2010–11 ROLL |
| | |

Compiled By The Butte County Assessor's Office


39-58
61
42-18
GLENN CO.
BUTTE CO.
SACRAMENTO
RIVER
1924.56
23.69 AC
16
32
73.56 AC
15
17
47.81 Ac.
2501.40
14
2360.16
30
38.770 AC
13
0.11 Ac
1934.46
25
12
9
58.5 Ac.
11
8
RIVER
ROAD
Mud
Water
Channel
Creek
Chico
1816.98
15
49.2 Ac.
99.22
9
1095.6
1518.00
29
125.2 AC
10
GRAPE
1862.52
WAY
1482.00
35
300.00
1.96 AC
B
34
156.24 AC
8
7
P/M 115-78
Creek
1" = 800'
MERIDIAN SUB.
T.22N. R.1W. M.D.B.&M.
All Assessors' maps are prepared for local property assessment purposes ONLY and the parcels shown thereon may not comply with State and local subdivision ordinances. No liability is assumed for the use of the information shown on any Assessors' map.
BK.39
53
Meridian Sub. M.O.R. Bk. B Pg. 16
Assessor's Map No. 39-58
County of Butte, Calif.
REVISED: 12-91
(42-24)

# Attachment B
# Biological Report

# M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY

## TERRESTRIAL SURVEYS

*Prepared for:*

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August 2012

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Appendix D Raptor Nesting Surveys Data Sheets

# 1 Introduction

This report provides the results of terrestrial surveys—including a vegetation community assessment, giant garter snake (GGS) habitat assessment, valley elderberry longhorn beetle (VELB) habitat assessment, and raptor nest survey—that were conducted by Robertson-Bryan, Inc. (RBI) in support of the M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project (Project). This report does not include terrestrial resources data from any other sources, with one exception. During a site visit on U.S. Fish and Wildlife Service (USFWS) land within the Project area, USFWS Refuge Manager Kelly Moroney requested that USFWS raptor data be included in the report. Therefore, applicable raptor data obtained from USFWS has been incorporated into the report, as described in Section 3.4, below.

Provided below are the methods and results of these surveys.

# 2 Methods

This section provides a description of survey methods for the vegetation community assessment, GGS habitat assessment, VELB habitat assessment, and raptor nest survey. All location information was collected using a Trimble 2005 Geo XT Geographic Positioning System (GPS) unit with submeter accuracy. The Project area is shown in Figure 1 (HDR 2012).

## 1.1 Vegetation Community Assessment

A vegetation community assessment was conducted by a team of two biologists on foot on June 25–28, 2012. Biologists delineated boundaries between vegetation communities within the Project area and collected the following data for each vegetation community.

- Date and surveyor names
- Trimble GPS unit polygon identification code and/or map number
- Photo number(s), if applicable
- Field-assessed vegetation community type
- Dominant overstory species composition
- Subdominant or understory species composition
- Wildlife species observed on site

Vegetation community boundaries were digitized and overlaid on a map of the Project area. Based on species composition within each field-assessed vegetation community, applicable vegetation community designations were assigned to each area using classifications described in A Manual of California Vegetation, Second Edition (Sawyer, Keeler-Wolf, and Evens 2011). In addition, an equivalent wildlife habitat community was designated for each vegetation community, based on A Guide to Wildlife Habitats of California (Mayer and Laudenslayer 1988).

## 1.2 Giant Garter Snake Habitat Assessment

An assessment of GGS habitat present in the Project area was conducted on foot by two biologists concurrently with the vegetation community assessments on June 25–28, 2012. The habitat assessment was based on methods described in Draft Recovery Plan for the Giant Garter Snake (USFWS 1999a) and *Appendix B, Items Necessary for the Service to Complete Formal Consultation on Projects with Impacts to Giant Garter Snake* (USFWS 1997)

GGS habitat is defined by USFWS to include “agricultural wetlands and other waterways, such as irrigation and drainage canals, ricelands, marshes, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands. Essential habitat components consist of (1) adequate water during the snake’s active season (early spring through mid-fall) to provide adequate permanent water to maintain dense populations of food organisms; (2) emergent, herbaceous wetlands vegetation, such as cattails (*Typha* spp.) and bulrushes (*Scirpus* spp.) for escape and cover during the active season; (3) upland habitat with grassy banks and opening in waterside vegetation for basking; and (4) higher elevation upland habitats for cover and refuge from flood waters during the snake’s inactive winter season. Giant garter snake is absent from larger rivers, and from wetlands with sand, gravel, or rock substrates. Riparian woodlands do not typically provide suitable habitat because of excessive shade, lack of basking sites, and the absence of prey populations” (USFWS 1999a).

Biologists noted the presence of potential aquatic and upland habitats that may represent habitat for GGS, both within the Project area and on lands immediately adjacent to the Project area. For each potential habitat present, the following data were collected:

- Date and surveyor names
- Trimble GPS unit polygon identification code
- Photo number(s), if applicable
- Site description:
    - Vegetation community
    - Habitat types present, substrate/soils, etc.
    - Topography/elevation
    - Surrounding land-use/activity
    - Flood regime or site hydrology
- Essential GGS habitat components present

## 1.3 Valley Elderberry Longhorn Beetle Habitat Assessment

An assessment of VELB habitat present in the Project area was conducted on foot by two biologists on June 25–28, 2012. The assessment was conducted based on the requirements of the Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS 1999b).

VELB habitat is defined by USFWS to include elderberry plants with one or more stems measuring 1.0 inch or greater in diameter at ground level, located within California’s Central

Valley and associated foothills from about the 3,000-foot elevation contour on the east and the watershed of the Central Valley on the west (USFWS 1999b).

Biologists surveyed the Project area for VELB habitat and documented the location of each elderberry shrub using a Trimble 2005 Geo XT GPS unit with submeter accuracy. In addition, because USFWS generally requires a 100-foot protective buffer for VELB around a construction area, (USFWS 1999b), a 100-foot buffer around the Project area was also surveyed.

For each elderberry shrub identified within 100 feet of the Project area, biologists obtained the following data:

- Date and surveyor names
- Trimble GPS unit point identification code
- Photo number(s), if applicable
- Whether shrub is in riparian or upland habitat
- Approximate height of shrub
- Number of live stems measuring 1 inch or greater in diameter at ground level, tallied by diameter size class (≥ 1 inch & ≤ 3 inches; >3 and ≤ 5 inches, > 5 inches)[1]
- Presence of exit holes

Data on number of stems, stem size, and exit holes were collected only when base of shrub was accessible (e.g., not located on an inaccessible slope or obscured by blackberry bramble or poison oak). The location of each elderberry shrub was then digitized and mapped.

## 1.4 Raptor Nesting Survey

Two biologists searched for the presence of nesting raptors within 500 feet of the Project area on June 25–28, 2012. One survey was conducted in the morning (between approximately 6 a.m. and 10 a.m.) and one survey was conducted in the evening (between approximately 6 p.m. and 9 p.m.) in the Project Area on both the east and west side of the Sacramento River. Biologists conducted the survey on foot in areas accessible to the public, or in areas where access had been previously granted by property owners. Other areas were surveyed using binoculars at suitable vantage points. Survey methods included the following:

- Biologists conducted a reconnaissance of appropriate habitat within the Project area, scanning for the presence of raptors and nests by foot and using binoculars.
- Biologists systematically walked through appropriate habitat within the Project area carefully monitoring for individual raptors and raptor signs, such as scat, whitewash, feathers, and nesting materials.
- Observers noted the presence of individuals or sign, and identified the detection to the most specific taxonomic level possible.

Biologists obtained the following data:

- Date and surveyor names
- Raptor species observed (including sex and age, where possible)
- Trimble GPS unit point identification code for any nests identified
- Photo number(s), if applicable
- Description of nest site (species, nest type, habitat, presence of young within nests, etc.)

Each active nest tree was digitized and mapped.

# 2 Results

This section and associated maps and appendices provide the results of surveys conducted by RBI biologist during the June 25–28 surveys. This section does not include terrestrial resources data from any other sources, with one exception. During a site visit on U.S. Fish and Wildlife Service (USFWS) land within the Project area, USFWS Refuge Manager Kelly Moroney requested that USFWS raptor data be included in the report. Therefore, applicable data obtained from USFWS has been incorporated into the report, as described in Section 2.4 below.

## 2.1 Vegetation Community Assessment

A total of 10 vegetation communities were identified in the Project area. These included one grassland community, two shrubland vegetation communities, four woodland/forest vegetation communities, riverine aquatic habitat, disturbed/ruderal vegetation, and agricultural areas. Table 1 provides a list of these vegetation communities and characteristic species, as well as equivalent wildlife habitats. Refer to Figure 2 for the distribution and extent of each vegetation community within the Project area, photographs 1 through 6 for representative photos of vegetation communities in the Project area, and Appendix A for the field data sheets.

## 2.2 Giant Garter Snake Habitat Assessment

No GGS habitat was documented within the Project area. Based on observations of communities and land uses immediately adjacent to the Project area, it was determined that a wetland area outside the Project area, along the western bank of Big Chico Creek near its confluence with the Sacramento River, contains several essential GGS habitat components. This area was not accessed directly, but was viewed with binoculars from the opposite bank of Big Chico Creek. Potential essential habitat components which characterize the area include:

- Adequate water during the snake's active season (i.e., within Big Chico Creek);
- Emergent, herbaceous vegetation, including cattails (*Typha* spp.) and bulrushes (*Scirpus* spp.);
- Upland habitat with grassy banks; and

However, this wetland area is bordered by the Sacramento River, orchards, and riparian woodlands, which do not represent habitat for GGS. As stated previously, riparian woodlands are not considered suitable habitat because of excessive shade, lack of basking sites, and the absence of prey (USFWS 1999a).

See photographs 7 and 8 for representative photos of the wetland area outside the Project area representing potential GGS habitat. Field data sheets are included as Appendix B.

## 2.3 Valley Elderberry Longhorn Beetle Habitat Assessment

A total of 372 elderberry shrubs were documented within 100 feet of the Project area, 274 of which are within the Project area boundaries. Three of the 372 documented shrubs located in valley oak woodlands along Big Chico Creek, showed signs of VELB occupation (exit holes).

A portion of the Project area on the west side of the Sacramento River is within the Capay Unit of the Sacramento River National Wildlife Refuge. Since its acquisition in 1999, the USFWS has gradually restored portions of the Capay unit with native riparian and grassland species. Of the 372 recorded elderberry shrubs, 300 were located within non-riparian blue elderberry stands planted and maintained by the USFWS.

Refer to Figure 3 for the locations of elderberry shrubs within the Project area, photographs 9–14 for representative photos, and Appendix C for field data sheets.

## 2.4 Raptor Nesting Surveys

An active osprey nest was observed approximately 67 feet outside the Project area, on top of a utility pole along River Road (Figure 3, Photographs 15 and 16). Two adult osprey and two nestlings were seen on the nest, and the adults were calling and foraging in Sacramento River throughout the survey period.

Biologists tried to locate an osprey nest that was previously documented in the survey area (HDR, Inc., 2007). However, this nest is no longer present in the Project area.

Additional raptor species observed foraging or soaring within the Project area included red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), red-shouldered hawk (*Buteo lineatus*), and Swainson's hawk (*Buteo swainsoni).* However, no nests of these species were identified within 500 feet of the Project area.

As noted previously, additional raptor data were obtained from USFWS (Moroney, 2012, pers. comm.). After reviewing this data, it was determined that there are no USFWS-identified nests within Project area or in the vicinity of the Project area as depicted on Project maps (Figure 3). USFWS has documented one osprey occurrence (e.g. observation or fly-over in the vicinity of the Project. This occurrence is shown on Figure 3.

Refer Appendix D for field data sheets.

Refer Appendix D for field data sheets.

## 3 References


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Sawyer, John 0., T. Keeler-Wolf, and J.M. Evens. 2011. *A Manual of California Vegetation*. 2nd Edition. California Native Plant Society Press. Sacramento, California.

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———. 2012. *Sacramento River National Wildlife Refuge- River Channel Surveys*.

# Table

**TABLE 1. VEGETATION COMMUNITIES IN THE PROJECT AREA.**

| Vegetation Community[1] | CWHR Wildlife Habitat type[2] | Representative Photograph | Dominant Overstory Species | Subdominant or Understory Species or Description |
|---|---|---|---|---|
| Purple needle grass grassland (*Nassella pulchra* Herbaceous Alliance) | Perennial Grassland | 1 | No overstory | purple needle-grass (*Nassella pulchra*)<br>blue wildrye (*Elymus glaucus*)<br>creeping ryegrass (*Leymus triticoides*)<br>meadow barley (*Hordeum brachyantherum*)<br>deer-grass (*Muhlenbergia rigens*)<br>Santa Barbara sedge (*Carex barbarae*)<br>narrow-leaved sedge (*Carex amphibola*) |
| Blue elderberry stands (*Sambucus nigra* Shrubland Alliance) | Valley Foothill Riparian | 2 | elderberry (*Sambucus nigra* ssp. *caerulea*)<br>box elder (*Acer negundo*)<br>coyote brush (*Baccharus sp.*)<br>valley oak (*Quercus lobata*)<br>sycamore (*Platanus racemosa*) | native grasses<br>California wild grape (*Vitis californica*)<br>poison oak (*Toxicodendron diversilobum*)<br>western raspberry (*Rubus leucodermis*)<br>stinging nettles (*Urtica dioica*) |
| Sandbar willow thickets (*Salix exigua* Shrubland Alliance) | Valley Foothill Riparian | – | sandbar willow (*Salix exigua*)<br>arryo willow (*Salix lasiolepis*)<br>black willow (*Salix goodingii*)<br>Hind's walnut (*Juglans hindsii*)<br>box elder (*Acer negundo*)<br>white alder (*Alnus rhombifolia*)<br>Fremont cottonwood (*Populus fremontii*) | curly dock (*Rumex crispus*)<br>Himalayan blackberry (*Rubus discolor*)<br>California wild grape (*Vitis californica*) |
| California sycamore woodlands (*Platanus racemosa* Woodland Alliance) | Valley Foothill Riparian | 3 | sycamore (*Platanus racemosa*)<br>Fremont cottonwood (*Populus fremontii*)<br>sandbar willow (*Salix exigua*)<br>arryo willow (*Salix lasiolepis*)<br>black willow (*Salix goodingii*) | native and non-native grasses<br>black mustard (*Brassica nigra*)<br>tall reedy grass<br>stinging nettles (*Urtica dioica*)<br>California wild grape (*Vitis californica*)<br>curly dock (*Rumex crispus*)<br>Himalayan blackberry (*Rubus discolor*) |

**TABLE 1. VEGETATION COMMUNITIES IN THE PROJECT AREA.**

| Vegetation Community[1] | CWHR Wildlife Habitat type[2] | Representative Photograph | Dominant Overstory Species | Subdominant or Understory Species or Description |
|---|---|---|---|---|
| Hind's walnut and related stands (*Juglans hindsii* and Hybrids Special and Semi-Natural Woodland Stands) | Valley Foothill Riparian | 4 | sycamore (*Platanus racemosa)*<br>valley oak *(Quercus lobata)*<br>Fremont cottonwood (*Populus fremontii)*<br>box elder *(Acer negundo)*<br>sandbar willow *(Salix exigua)*<br>arryo willow *(Salix lasiolepis)*<br>black willow *(Salix goodingii)*<br>Hind's walnut *(Juglans hindsii)* | No understory |
| Box-elder forest (*Acer negundo* Forest Alliance) | Valley Foothill Riparian | – | elderberry *(Sambucus nigra* ssp. *caerulea)* | native grasses |
| Valley oak woodland (*Quercus lobata* Woodland Alliance) | Valley Oak Woodland | 5 | valley oak *(Quercus lobata)*<br>sycamore *(Platanus racemosa)*<br>coyote brush *(Baccharus sp.)*<br>box elder *(Acer negundo)* | California wild grape *(Vitis californica)*<br>native and non-native grasses<br>Hind's walnut *(Juglans hindsii)*<br>elderberry *(Sambucus nigra* ssp. *caerulea)*<br>poison oak *(Toxicodendron diversilobum)*<br>western raspberry *(Rubus leucodermis)*<br>pokeberry *(Phytolacca Americana)* |
| Disturbed/Ruderal | Barren | 6 | No overstory | turkey mullein *(Croton setigerus)*<br>rush skeletonweed *(Chondrilla juncea)*<br>yellow starthistle *(Centaurea solstitialis)*<br>black mustard *(Brassica nigra)*<br>wild radish *(Raphanus raphanistrum)*<br>Italian wild rye *(Lolium multiflorum)*<br>puncture vine *(Tribulus terrestris)*<br>bindweed *(Convolvulus arvensis)*<br>non-native grasses |

**TABLE 1. VEGETATION COMMUNITIES IN THE PROJECT AREA.**

| Vegetation Community[1] | CWHR Wildlife Habitat type[2] | Representative Photograph | Dominant Overstory Species | Subdominant or Understory Species or Description |
|---|---|---|---|---|
| Agricultural | Deciduous Orchard | – | English walnut *(Juglans regia)* | N/A |
| Riverine | Riverine Aquatic | – | N/A | N/A |

[1] As categorized in *A Manual of California Vegetation*, Second Edition (Sawyer, Keeler-Wolf, and Evens 2011).

[2] As categorized in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988).

# Figures

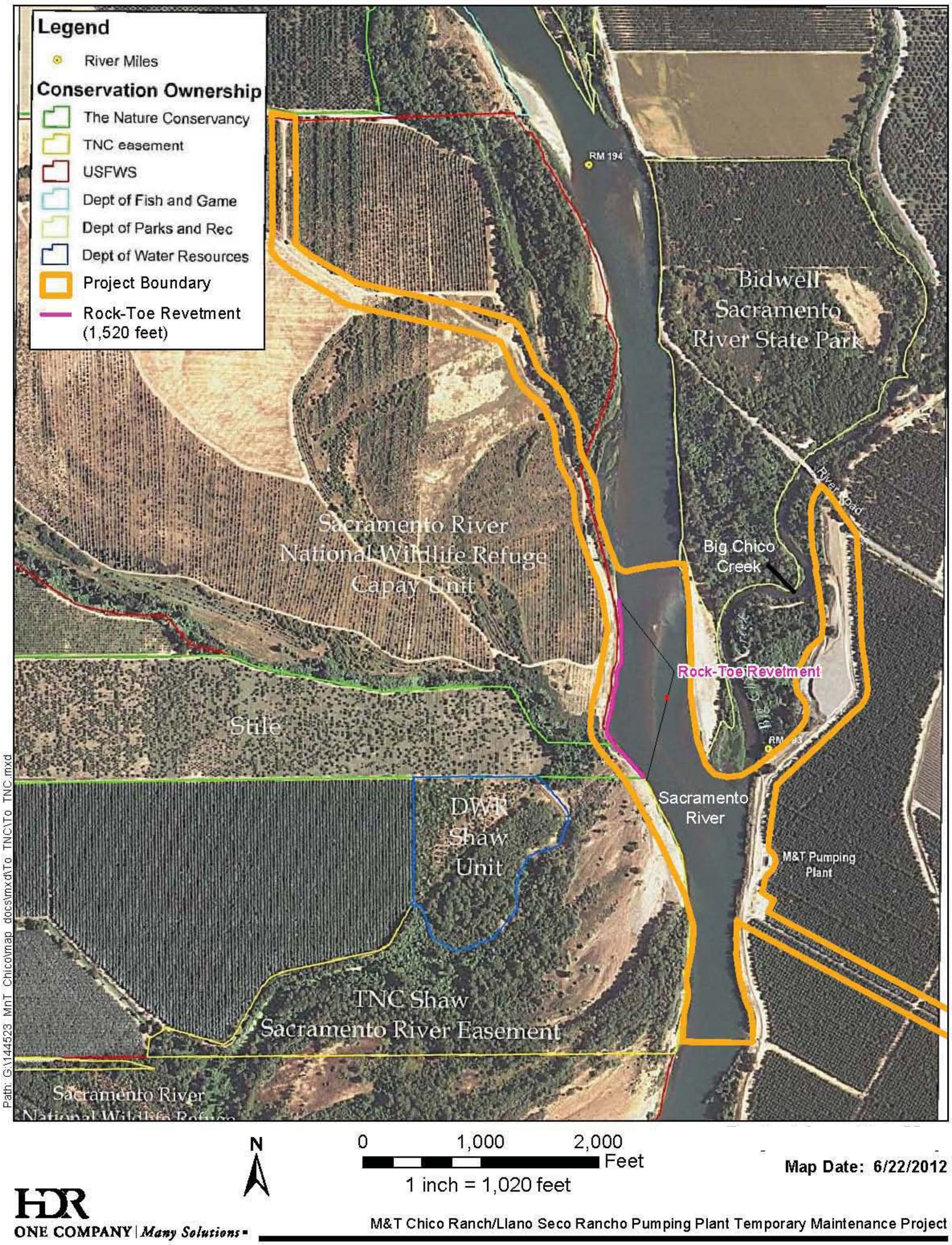



FIGURE 1. PROJECT AREA.

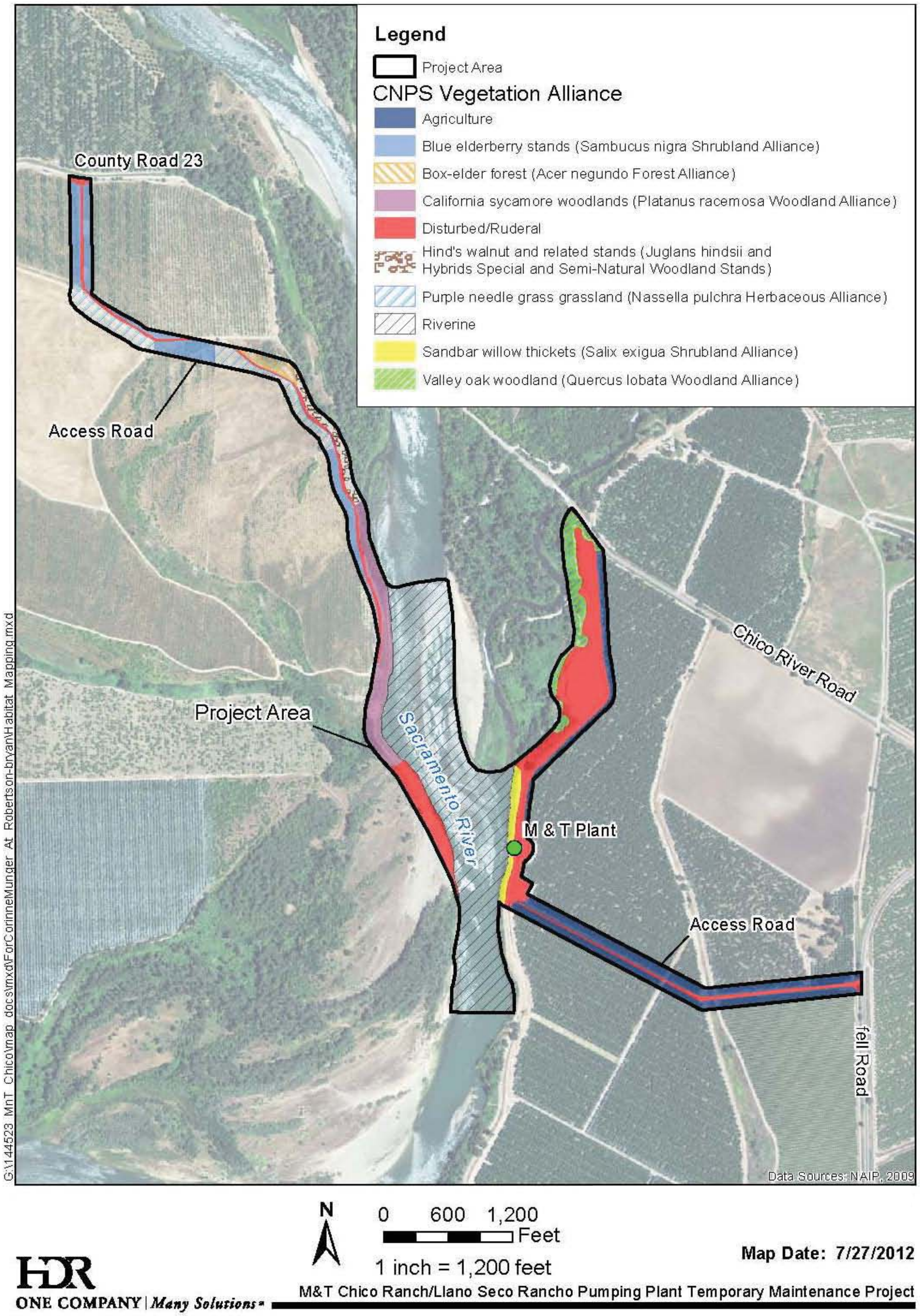



FIGURE 2. VEGETATION COMMUNITIES WITHIN THE PROJECT AREA.

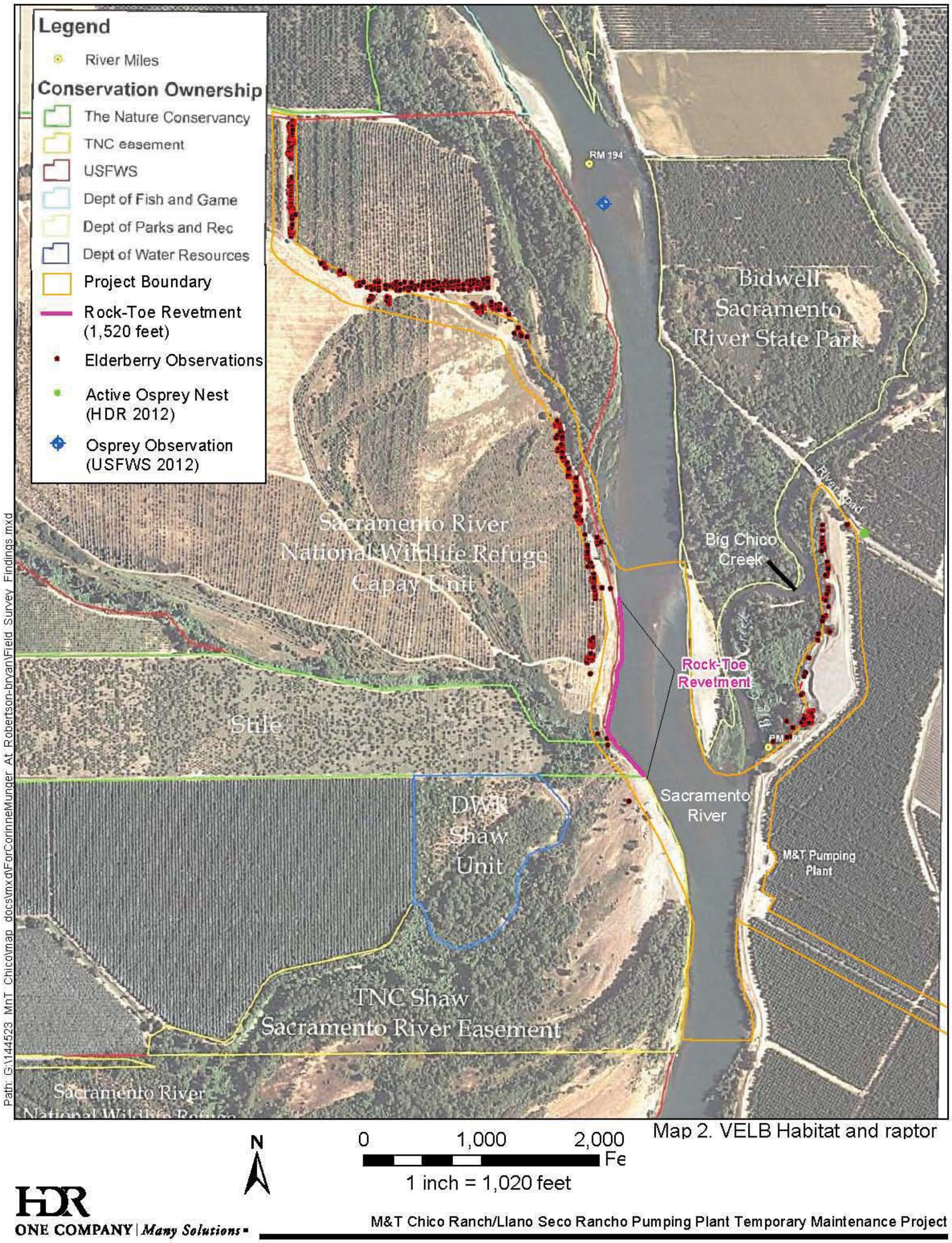



FIGURE 3. RESULTS OF VALLEY ELDERBERRY LONGHORN BEETLE HABITAT ASSESSMENT AND RAPTOR SURVEYS.

# Photographs

Photo 1. Purple needle grass grassland (*Nassella pulchra* Herbaceous Alliance)

Photo 2. Blue elderberry stands (*Sambucus nigra* Shrubland Community)

Photo 3. California sycamore woodlands (*Platanus racemosa* Woodland Alliance)

Photo 4. Hind's walnut and related stands (*Juglans hindsii* and Hybrids Special and Semi-natural Woodland Stands)

Photo 5. Valley oak woodland (*Quercus lobata* Woodland Alliance)

Photo 6. Disturbed/Ruderal area on the west shore of the Sacramento River.

Photo 7. Portion of wetland area, outside the Project area, on Big Chico Creek that includes several essential habitat elements for giant garter snake.

Photo 8. Portion of wetland area, outside the Project area, on Big Chico Creek that includes several essential habitat elements for giant garter snake..

Photo 9. Elderberry shrub overgrown with California wild grape (EB 50)

Photo 10. Elderberry shrub overgrown with California wild grape (EB 52)

Photo 11. Elderberry shrub overgrown with California wild grape (EB 53)

Photo 12. Elderberry shrub overgrown with Himalayan blackberry (EB 97)

Photo 13. Rows of elderberry shrubs in the Capay Unit of the Sacramento National Wildlife Refuge.

Photo 14. Rows of elderberry shrubs in the Capay Unit of the Sacramento National Wildlife Refuge.

Photo 15. Active osprey nest near River Road.

Photo 16. Active osprey nest near River Road.

# Appendix A

Vegetation Community Assessment Data Sheets

## Vegetation Community Assessment
### M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/26/2012 Surveyors: SR/CM Comments: M&T Chico Ranch, East Side of Sacramento River

| Vegetation Community | | Trimble GPS Unit Polygon ID code or Map Markup | Photo Number(s) | Subdominant or Understory Species | Dominant Overstory Species | Notes Wildlife Species Observed[1] |
|---|---|---|---|---|---|---|
| In-Field Assessment | Sawyer, Keeler-Wolf Assessment | | | | | |
| Ruderal | Disturbed/Ruderal | Includes road and embankments (refer to map) | – | turkey mullein<br>skeleton weed<br>non-native grasses<br>yellow star-thistle<br>black mustard<br>wild radish<br>Italian wild rye<br>puncture vine<br>bindweed | N/A | TUVU, RTHA |
| Willow/Alder Riparian | Sandbar willow thickets (*Salix exigua* Shrubland Alliance) | Single/double line of trees and shrubs along Sacramento river bank(refer to map) | – | willow<br>California walnut<br>box elder<br>white alder<br>cottonwood | *R. discolor*, curly dock, *Vitis* | |
| Agricultural | Deciduous Orchard | Inland of road (refer to map) | – | English walnut | N/A | HOFI, AMRO, MODO, EUST |
| Riparian Woodland | Valley oak woodland (*Quercus lobata* Woodland Alliance) | Start PT.=Forest Start End=Forest end (refer to map) | – | valley oak<br>sycamore | *Vitis*, grasses, walnut, elderberry, poison oak, raspberry, pokeberry | LEGO, BHGR, AMRO, warbler spp., SPTO, ATFL, CATO, WWPE, WIWA, BUOR, AMGO |

# VEGETATION COMMUNITY ASSESSMENT

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/27/2012 Surveyors: SR/CM Comments: Capay Unit of SRNWR, West Side of Sacramento River

| Vegetation Community | | Trimble GPS Unit Polygon ID Code or Map Markup | Photo Number(s) | Subdominant or Understory Species | Dominant Overstory Species | Notes Wildlife Species Observed |
|---|---|---|---|---|---|---|
| In-Field Assessment | Sawyer, Keeler-Wolf | | | | | |
| Grassland / Chaparral | California sycamore woodlands (*Platanus racemosa* Woodland Alliance) | Area 1 (refer to map) | 3924–3926 | native & non-native<br>black mustard<br>tall reedy grass<br>nettles<br>grape,<br>curly dock | Shrubs:<br>*Baccharis*<br>box elder<br>valley oak<br>sycamore<br>10% cover, <10 ft;<br>planted w/in last 2 years | Restored veg type<br><br>TUVU, RTHA, SWHA |
| USFWS Vegetation Type | Blue elderberry stands (*Sambucus nigra* Shrubland Alliance ) | Area 2 (refer to map) | 3927 & 2928 | native grasses<br>grape<br>poison oak<br>*Rubus*, nettles | elderberry<br>box elder<br>*Baccharis*<br>some valley oak, sycamore | WEKI, ATFL, CAQU, BHGR, AMRO, TRSW |
| USFWS Recently Planted | Blue elderberry stands (*Sambucus nigra* Shrubland Alliance ) | Area 3 (refer to map) | – | native & non-native grasses<br>black mustard<br>nettles, grape, curly dock | sycamore<br>cottonwood<br>willow | |
| Native Grassland | Purple needle grass grassland (*Nassella pulchra* Herbaceous Alliance) | Area 4 (refer to map) | 3929 & 3930 | native grassland | | |
| Riparian Woodland | Hind's walnut and related stands (*Juglans hindsii* and Hybrids Special and Semi-Natural Woodland Stands) | Area 5 (refer to map) | 3931 & 3932 | sycamore<br>valley oak<br>cottonwood<br>box elder<br>willows, walnut | little overstory – similar to Chaparral | AMRO |
| Box Elder Grassland | Box-elder forest (*Acer negundo* Forest Alliance) | Area 6 (refer to map) | – | box elder | native grassland<br>elderberry | |

## VEGETATION COMMUNITY ASSESSMENT

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/28/2012 Surveyors: SR/CM Comments: Shaw & Stiles Properties, West Side of Sacramento River

| Vegetation Community | | Trimble GPS Unit polygon ID code or Map Markup | Photo Number(s) | Subdominant or Understory Species | Dominant Overstory Species | Notes Wildlife Species Observed |
|---|---|---|---|---|---|---|
| In-Field Assessment | In-Field Assessment | | | | | |
| Subshrub | Disturbed/Ruderal | Area 7 (refer to map) | – | Sandy/rock with subshrub (not in bloom), Aster family<br>50% cover | N/A | Shaw property<br>KILL (incl. juveniles) |
| Grass Savannah | Disturbed/Ruderal | Area 8 (refer to map) | – | non-native grasses<br>yellow star-thistle | willow | Shaw property<br>AMRO, LASP, LEGO, WEKI |
| See Area 1 | California sycamore woodlands (*Platanus racemosa* Woodland Alliance) | Area 9 (refer to map) | – | see Area 1; no elderberry | willow (along cutbank above revetment) | Stiles property |
| See Area 5 | Hind's walnut and related stands (*Juglans hindsii* and Hybrids Special | Area 10 (refer to map) | – | see Area 5 | walnut most dominant | |

[1] **Key to Bird Abbreviations**

AMGO = American goldfinch

AMRO = American robin

ATFL = ash-throated flycatcher

BHGR = black-headed grosbeak

BUOR = Bullock's oriole

CATO = California towhee

CAQU = California quail

EUST = European starling

HOFI = house finch

KILL = killdeer

LASP = lark sparrow

LEGO = lesser goldfinch

MODO = mourning dove

RTHA = red-tailed hawk

SPTO = spotted towhee

SWHA = Swainson's hawk

TRSW = tree swallow

TUVU = turkey vulture WEKI = western kingbird

WIWA = Wilson's warbler

WWPE = Western wood-peewee

# Appendix B

Giant Garter Snake Habitat Assessment Data Sheets

## Giant Garter Snake Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/25–6/28/2012 Surveyors: SR/CM Comments: Chico M&T Ranch

| Trimble GPS Unit polygon ID code[1] | Photo Number(s) | Site Description[2] | Habitat characteristics[3] |
|---|---|---|---|
| No appropriate habitat present in Project area | | | |
| Outlet of Big Chico Creek – outside of Project area<br><br>Viewed from Project area with binoculars | – | Marsh area along outlet of Big Chico Creek<br>Western shore of creek<br>Surrounding land uses and vegetation communities: Sacramento River, riparian woodland, orchards. | 1. Big Chico Creek<br>2. Marsh vegetation includes *Typha* and *Scirpus* spp.<br>3. Grassy banks<br>4. Willow scrub |

[1] GPS Coordinate System: UTM zone 10 North; Datum: NAD 1983 (Conus).

[2] May include vegetation community; habitat types present; substrate/soils; topography; elevation; surrounding land use/activity; flood regime/site hydrology.

[3] Indicate essential habitat components present:

1. Adequate water during the snake's active season (early spring through mid-fall) to provide adequate permanent water to maintain dense populations of food organisms;
2. Emergent, herbaceous wetlands vegetation, such as cattails (Typha spp.) and bulrushes (Scirpus spp.) for escape and cover during the active season;
3. Upland habitat with grassy banks and opening in waterside vegetation for basking; and
4. Higher elevation upland habitats for cover and refuge from flood waters during the snake's inactive season in winter.

# Appendix C

Valley Elderberry Longhorn Beetle Habitat Assessment Data Sheets

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/25/2012 Surveyors: SR/CM Comments: M&T Chico Ranch

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (Inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB1 | – | Y | 12 | N/A | ≥ 1 & ≤3 | N/A | N/A | • Difficult to differentiate into individual shrubs<br>• Thick layer of grape and blackberry bramble prevents access to base of shrubs. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB2 | – | Y | 12 | N/A | ≥ 1 & ≤3 | N/A | N/A | |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB3 | – | Y | 11 | N/A | ≥ 1 & ≤3 | N/A | N/A | |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB4 | – | Y | 7 | 1 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 0 | | |
| EB5 | – | Y | 13 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 0 | | |
| EB6 | – | Y | 15 | 6 | ≥ 1 & ≤3 | 5 | N | • Difficult to differentiate into individual shrubs<br>• Thick layer of grape and blackberry bramble prevents access to base of shrubs. |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 0 | | |
| EB7 | – | Y | 6 | 3 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 0 | | |
| EB8 | – | Y | 7 | 5 | ≥ 1 & ≤3 | 5 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 0 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/25/2012 Surveyors: SR/CM Comments: M&T Chico Ranch

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (Inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB9 | – | Y | 5 | 1 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 0 | | |
| EB10 | – | Y | 15 | 4 | ≥ 1 & ≤3 | N/A | N/A | • Shrub is 10' NE of GPS point<br>• Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB11 | – | Y | 8 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 0 | | |
| EB12 | – | Y | 16 | 1 | ≥ 1 & ≤3 | 0 | N | Shrub is dying |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 0 | | |
| EB13 | – | Y | 6 | 1 | ≥ 1 & ≤3 | 0 | N | Shrub is dying |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB14 | – | Y | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB15 | – | Y | 20 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 0 | | |
| EB16 | – | Y | 18 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 0 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/25/2012 Surveyors: SR/CM Comments: M&T Chico Ranch

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB17 | – | Y | 18 | 3 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 0 | | |
| EB18 | – | Y | 19 | 4 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 0 | | |
| EB19 | – | Y | 18 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 0 | | |
| EB20 | – | Y | 15 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 0 | | |
| EB21 | – | Y | 14 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 0 | | |
| EB22 | – | Y | 10 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 0 | | |
| EB23 | – | Y | 8 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 0 | | |
| EB24 | – | Y | 20 | 3 | ≥ 1 & ≤3 | 1 | Y | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 0 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/25/2012 Surveyors: SR/CM Comments: M&T Chico Ranch

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB25 | – | Y | 22 | 5 | ≥ 1 & ≤3 | 2 | N | Shrub is mature w/large stems (some 15” dia); some die-off. |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB26 | – | Y | 18 | 1 | ≥ 1 & ≤3 | 0 | N | Shrub is mature w/large stems (some 15” dia); some die-off. |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB27 | – | Y | 12 | 1 | ≥ 1 & ≤3 | 0 | N | Shrub is mature w/large stems (some 15” dia); some die-off. |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB28 | – | Y | 15 | 1 | ≥ 1 & ≤3 | 0 | N | Shrub is mature w/large stems (some 15” dia); some die-off. |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB29 | – | Y | 22 | 4 | ≥ 1 & ≤3 | 2 | N | Shrub is mature w/large stems (some 15” dia); some die-off. |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB30 | – | Y | 10 | 3 | ≥ 1 & ≤3 | 1 | N | Shrub is mature w/large stems (some 15” dia); some die-off. |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB31 | – | Y | 8 | 3 | ≥ 1 & ≤3 | 0 | N | Shrub is mature w/large stems (some 15” dia.); some die-off. |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB32 | – | Y | 12–20 | 10 | ≥ 1 & ≤3 | 6 | N | Group of stems surrounding valley oak |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 0 | | |

**VELB Habitat Assessment**

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/25/2012 Surveyors: SR/CM Comments: M&T Chico Ranch

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (Inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB33 | – | Y | 12 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 1 | | |
| EB34 | – | Y | 10 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 0 | | |
| EB35 | – | Y | 10 | 8 | ≥ 1 & ≤3 | 5 | N | Group of stems surrounding valley oak |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 0 | | |
| EB36 | – | Y | 6 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 0 | | |
| EB37 | – | Y | 6 | 2 | ≥ 1 & ≤3 | N/A | N/A | • Shrub is 10' E of GPS point<br>• Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB38 | – | Y | 10–15 | N/A | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB39 | – | Y | 18 | 6 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 5 | | |
| | | | | | ≥ 5 | 0 | | |
| EB40 | – | Y | 18 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 2 | | |

# VELB Habitat Assessment

## M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/26/2012 Surveyors: SR/CM Comments: M&T Chico Ranch – NE side of road toward BC Creek

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (Inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB41 | – | Y | 20 | ~4 | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB42 | – | Y | 30 | ~3 | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB43 | – | Y | 18 | ~8 | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB44 | – | Y | 18 | ~3 | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB45 | – | Y | 15 | ~5 | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB46 | – | Y | 15 | N/A | ≥ 1 & ≤3 | N/A | N/A | • Shrub is 8' from GPS point<br>• Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB47 | – | Y | 16 | ~2 | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB48 | – | Y | 15 | ~4 | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/26/2012 Surveyors: SR/CM Comments: M&T Chico Ranch – NE side of road toward BC Creek

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (Inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB49 | – | Y | 18 | N/A | ≥ 1 & ≤3 | N/A | N/A | • Shrub is 30’ in from GPS point<br>• Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB40 | – | Y | 22 | N/A | ≥ 1 & ≤3 | N/A | N/A | • Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB51 | – | Y | 6 | 1 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 0 | | |
| EB52 | – | Y | 30 | ~6 | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB53 | – | Y | 30 | Many | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB54 | – | Y | 25 | 3 | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB55 | – | Y | 30 | Many | ≥ 1 & ≤3 | N/A | N/A | • Shrub group is 20’ back from GPS point.<br>• Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/26/2012 Surveyors: SR/CM Comments: M&T Chico Ranch – NE side of road toward BC Creek

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (Inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB56 | – | Y | 12 | 4 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB57 | – | Y | 20 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB58 | – | Y | 20 | 8 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 2 | | |
| EB59 | 3908 3910 | Y | 25 | 5 | ≥ 1 & ≤3 | 0 | Y | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 5 | | |
| EB60 | – | Y | 20 | 1 | ≥ 1 & ≤3 | 0 | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB61 | – | Y | 15 | 2 | ≥ 1 & ≤3 | 1 | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 0 | | |
| EB62 | 3911 | Y | 10 | N/A | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB63 | – | Y | 12 | 1 | ≥ 1 & ≤3 | 0 | N | Growing under large walnut tree. |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/26/2012 Surveyors: SR/CM Comments: M&T Chico Ranch – NE side of road toward BC Creek

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB64 | – | Y | 12 | 3 | ≥ 1 & ≤3 | 0 | Y | Very old; growing under large walnut tree. |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 0 | | |
| EB65 | – | Y | 10 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB66 | – | Y | 10 | N/A | ≥ 1 & ≤3 | N/A | N/A | Growing on incline in bramble (sudden drop); not accessible. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB67 | – | Y | 10 | N/A | ≥ 1 & ≤3 | N/A | N/A | Growing on incline in bramble (sudden drop); not accessible. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB68 | – | Y | 10 | 4 | ≥ 1 & ≤3 | 0 | N/A | Growing on incline in bramble (sudden drop); not accessible, but could see stems from above. |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 0 | | |
| EB69 | 3912<br>3913 | Y | 5–15 | 6–7 shrubs | ≥ 1 & ≤3 | N/A | N/A | • Delineates group of shrubs<br>• Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB70 | – | Y | 9 | 6 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB71[1] | – | Y | 10 | N/A | ≥ 1 & ≤3 | N/A | N/A | Shrub is 15' north/right of GPS point. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |

## VELB Habitat Assessment

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/26/2012 Surveyors: SR/CM Comments: M&T Chico Ranch – NE side of road toward BC Creek

| TRIMBLE GPS UNIT ID CODE | PHOTO NUMBER(S) | RIPARIAN? (Y/N) | APPROXIMATE HEIGHT OF SHRUB (FT) | TOTAL LIVE STEMS ≥ 1 INCH DIAMETER | TALLY OF STEM SIZES: STEM DIAMETER (INCHES) | TALLY OF STEM SIZES: NUMBER OF STEMS | PRESENCE OF EXIT HOLES (Y/N) | COMMENTS |
|---|---|---|---|---|---|---|---|---|
| EB72 | – | Y | 12 | N/A | ≥ 1 & ≤3 | N/A | N/A | • Shrub is 10’ from GPS point (toward creek).<br>• Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB73 | – | Y | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB74 | – | Y | 17 | 3 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 0 | | |
| EB75 | – | N | 28 | 3 | ≥ 1 & ≤3 | 0 | N/A | • Along River Road<br>• Thick layer of poison oak prevents access to base of shrub. |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 3 | | |

# VELB Habitat Assessment

## M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/27/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB76 | – | N | 13 | 7 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 3 | | |
| EB77 | – | N | 14 | 7 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 5 | | |
| | | | | | ≥ 5 | 1 | | |
| EB78 | – | N | 18 | 16 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 13 | | |
| | | | | | ≥ 5 | 1 | | |
| EB79 | – | N | 15 | 6 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 2 | | |
| EB80 | – | N | 17 | 5 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 2 | | |
| EB81 | – | N | 17 | 8 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 5 | | |
| | | | | | ≥ 5 | 2 | | |
| EB82 | – | N | 16 | 12 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 10 | | |
| | | | | | ≥ 5 | 0 | | |
| EB83 | – | N | 20 | 9 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 5 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/27/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB84 | – | N | 17 | 6 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 3 | | |
| EB85 | – | N | 16 | 8 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 6 | | |
| | | | | | ≥ 5 | 1 | | |
| EB86 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB87 | – | N | 18 | 5 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 2 | | |
| EB88 | – | N | 12 | 6 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 1 | | |
| EB89 | – | N | 18 | 8 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 3 | | |
| EB90 | – | N | 11 | 9 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 6 | | |
| | | | | | ≥ 5 | 0 | | |
| EB91 | – | N | 13 | 7 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 5 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/27/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB92 | – | N | 12 | 6 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 2 | | |
| EB93 | – | N | 11 | 6 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 5 | | |
| | | | | | ≥ 5 | 1 | | |
| EB94 | – | N | 8 | 8 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 2 | | |
| EB95 | – | N | 16 | 5 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB96 | – | N | 8 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 0 | | |
| EB97 | – | N | 12 | N/A | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB98 | – | N | 14 | 5 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 0 | | |
| EB99 | – | N | 7 | 5 | ≥ 1 & ≤3 | 5 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 0 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/27/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB100 | – | N | 19 | 8 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 7 | | |
| | | | | | ≥ 5 | 1 | | |
| EB101 | – | N | 18 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 3 | | |
| EB102 | – | N | 13 | 6 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 0 | | |
| EB103 | – | N | 15 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB104 | – | N | 17 | 8 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 6 | | |
| | | | | | ≥ 5 | 1 | | |
| EB105 | – | N | 16 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB106 | – | N | 16 | 7 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 6 | | |
| | | | | | ≥ 5 | 0 | | |
| EB107 | – | N | 14 | 8 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 5 | | |
| | | | | | ≥ 5 | 0 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/27/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB108 | – | N | 13 | 6 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 1 | | |
| EB109 | – | N | 16 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 1 | | |
| EB110 | – | N | 10 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB111 | – | N | 15 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB112 | – | N | 16 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB113 | – | N | 16 | 7 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 3 | | |
| EB114 | – | N | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB115 | – | N | 13 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/27/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| TRIMBLE GPS UNIT ID CODE | PHOTO NUMBER(S) | RIPARIAN? (Y/N) | APPROXIMATE HEIGHT OF SHRUB (FT) | TOTAL LIVE STEMS ≥ 1 INCH DIAMETER | TALLY OF STEM SIZES: STEM DIAMETER (INCHES) | TALLY OF STEM SIZES: NUMBER OF STEMS | PRESENCE OF EXIT HOLES (Y/N) | COMMENTS |
|---|---|---|---|---|---|---|---|---|
| EB116 | – | N | 20 | 3 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB117 | – | N | 20 | 3 | ≥ 1 & ≤3 | O | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 2 | | |
| EB118 | – | N | 25 | 5 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 1 | | |
| EB119 | – | N | 16 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB120 | – | N | 18 | 9 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 6 | | |
| | | | | | ≥ 5 | 1 | | |
| EB121 | – | N | 15 | 9 | ≥ 1 & ≤3 | 6 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 2 | | |
| EB122 | – | N | 17 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB123 | – | N | 17 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/27/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB124 | – | N | 17 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB125 | – | N | 16 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB126 | – | N | 19 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB127 | – | N | 18 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 3 | | |
| EB128 | – | N | 17 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB129 | – | N | 18 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 3 | | |
| EB130 | – | N | 17 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 3 | | |
| EB131 | – | N | 12 | 10 | ≥ 1 & ≤3 | 6 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 0 | | |

## VELB Habitat Assessment

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/27/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB132 | – | N | 15 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB133 | – | N | 8 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 0 | | |
| EB134 | – | N | 24 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB135 | – | N | 24 | 4 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB136 | – | N | 12 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB137 | – | N | 20 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB138 | – | N | 15 | 10 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 5 | | |
| | | | | | ≥ 5 | 1 | | |
| EB139 | – | N | 15 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/27/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| TRIMBLE GPS UNIT ID CODE | PHOTO NUMBER(S) | RIPARIAN? (Y/N) | APPROXIMATE HEIGHT OF SHRUB (FT) | TOTAL LIVE STEMS ≥ 1 INCH DIAMETER | TALLY OF STEM SIZES | | PRESENCE OF EXIT HOLES (Y/N) | COMMENTS |
|---|---|---|---|---|---|---|---|---|
| | | | | | STEM DIAMETER (INCHES) | NUMBER OF STEMS | | |
| EB140 | – | N | 15 | 14 | ≥ 1 & ≤3 | 8 | N | |
| | | | | | > 3 & < 5 | 6 | | |
| | | | | | ≥ 5 | 0 | | |
| EB141 | – | N | 14 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB142 | – | N | 16 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB143 | – | N | 17 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 0 | | |
| EB144 | – | N | 12 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB145 | – | N | 11 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB146 | – | N | 16 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 3 | | |
| EB147 | – | N | 15 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/27/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB148 | – | N | 16 | 6 | ≥ 1 & ≤3 | 5 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB149 | – | N | 15 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB150 | – | N | 14 | 5 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 1 | | |
| EB151 | – | N | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB152 | – | N | 18 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB153 | – | N | 16 | 5 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 1 | | |
| EB154 | – | N | 16 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 1 | | |
| EB155 | – | N | 14 | 4 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |

**VELB Habitat Assessment**

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/27/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB156 | – | N | 18 | N/A | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB157 | – | N | 20 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB158 | – | N | 18 | N/A | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB159 | – | N | 20 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB160 | – | N | 16 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB161 | – | N | 18 | 6 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 2 | | |
| EB162 | – | N | 20 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 1 | | |
| EB163 | – | N | 16 | 5 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/27/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (Inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB164 | – | N | 18 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB165 | – | N | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB166 | – | N | 18 | 3 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB167 | – | N | 17 | 3 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB168 | – | N | 17 | 7 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 1 | | |
| EB169 | – | N | 15 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB170 | – | N | 15 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB171 | – | N | 20 | N/A | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/27/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes | | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | | Stem Diameter (inches) | Number of Stems | | |
| EB172 | – | N | 17 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

**VELB Habitat Assessment**

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes | | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | | Stem Diameter (Inches) | Number of Stems | | |
| EB173 | – | N | 15 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 4 | | |
| EB174 | – | N | 30 | 5 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 5 | | |
| EB175 | – | N | 15 | 6 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 0 | | |
| EB176 | – | N | 25 | 1 | ≥ 1 & ≤3 | 0 | N | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB177 | – | N | 9 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 0 | | |
| EB178 | – | N | 40 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 3 | | |
| EB179 | – | N | 15 | 10 | ≥ 1 & ≤3 | 8 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB180 | – | N | 14 | 5 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes | | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | | Stem Diameter (Inches) | Number of Stems | | |
| EB181 | – | N | 16 | 5 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB182 | – | N | 14 | 7 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB183 | – | N | 14 | 7 | ≥ 1 & ≤3 | 5 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB184 | – | N | 15 | 8 | ≥ 1 & ≤3 | 7 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB185 | – | N | 18 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB186 | – | N | 7 | 3 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 0 | | |
| EB187 | – | N | 16 | 5 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 3 | | |
| EB188 | – | N | 12 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes | | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | | Stem Diameter (inches) | Number of Stems | | |
| EB189 | – | N | 14 | 3 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB190 | – | N | 14 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB191 | – | N | 16 | 5 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB192 | – | N | 17 | 7 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 6 | | |
| | | | | | ≥ 5 | 1 | | |
| EB193 | – | N | 18 | 8 | ≥ 1 & ≤3 | 5 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB194 | – | N | 16 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB195 | – | N | 14 | 6 | ≥ 1 & ≤3 | 5 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB196 | – | N | 16 | 9 | ≥ 1 & ≤3 | 6 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |

# VELB Habitat Assessment

## M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (Inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB197 | – | N | 16 | 6 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB198 | – | N | 15 | 9 | ≥ 1 & ≤3 | 8 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB199 | – | N | 18 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB200 | – | N | 15 | 7 | ≥ 1 & ≤3 | 5 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB201 | – | N | 15 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB202 | – | N | 17 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB203 | – | N | 16 | 4 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB204 | – | N | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| TRIMBLE GPS UNIT ID CODE | PHOTO NUMBER(S) | RIPARIAN? (Y/N) | APPROXIMATE HEIGHT OF SHRUB (FT) | TOTAL LIVE STEMS ≥ 1 INCH DIAMETER | TALLY OF STEM SIZES | | PRESENCE OF EXIT HOLES (Y/N) | COMMENTS |
|---|---|---|---|---|---|---|---|---|
| | | | | | STEM DIAMETER (INCHES) | NUMBER OF STEMS | | |
| EB205 | – | N | 15 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB206 | – | N | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB207 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB208 | – | N | 18 | 6 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB209 | – | N | 15 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB210 | – | N | 18 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB211 | – | N | 16 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB212 | – | N | 20 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB213 | – | N | 17 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB214 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB215 | – | N | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB216[1] | – | N | 16 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB217 | – | N | 17 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB218 | – | N | 19 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB219[1] | – | N | 17 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB220[1] | – | N | 18 | 5 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (Inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB221[1] | – | N | 18 | 8 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 4 | | |
| EB222 | – | N | 20 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB223 | – | N | 18 | 5 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB224[1] | – | N | 19 | 8 | ≥ 1 & ≤3 | 6 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB225[1] | – | N | 16 | 6 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 5 | | |
| | | | | | ≥ 5 | 1 | | |
| EB226[1] | – | N | 15 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB227 | – | N | 17 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB228[1] | – | N | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

# VELB Habitat Assessment

## M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB229[1] | – | N | 17 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB230[1] | – | N | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB231[1] | – | N | 18 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 2 | | |
| EB232[1] | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB233[1] | – | N | 18 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 3 | | |
| EB234[1] | – | N | 17 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB235[1] | – | N | 15 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB236[1] | – | N | 17 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes | | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | | Stem Diameter (Inches) | Number of Stems | | |
| EB237[1] | – | N | 17 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB238[1] | – | N | 18 | 8 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 1 | | |
| EB239[1] | – | N | 18 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB240[1] | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB241[1] | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB242[1] | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB243[1] | – | N | 17 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB244[1] | – | N | 16 | 7 | ≥ 1 & ≤3 | 6 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB245[1] | – | N | 17 | 9 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 1 | | |
| EB246[1] | – | N | 16 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB247[1] | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB248[1] | – | N | 17 | 7 | ≥ 1 & ≤3 | 6 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB249[1] | – | N | 16 | 7 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 7 | | |
| EB250[1] | – | N | 17 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB251[1] | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB252[1] | – | N | 20 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

# VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes | | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | | Stem Diameter (inches) | Number of Stems | | |
| EB253[1] | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB254[1] | – | N | 20 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB255[1] | – | N | 19 | 5 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 2 | | |
| EB256[1] | – | N | 17 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB257[1] | – | N | 17 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB258[1] | – | N | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB259[1] | – | N | 18 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB260[1] | – | N | 16 | 4 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB261[1] | – | N | 18 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB262[1] | – | N | 18 | 5 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB263[1] | – | N | 17 | 8 | ≥ 1 & ≤3 | 6 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB264[1] | – | N | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB265[1] | – | N | 18 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB266[1] | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB267[1] | – | N | 17 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB268[1] | – | N | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB269 | – | N | 20 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB270 | – | N | 25 | 5 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 5 | | |
| EB271 | – | N | 25 | 8 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 3 | | |
| EB272 | – | N | 16 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB273 | – | N | 25 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB274 | – | N | 18 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB275 | – | N | 20 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB276 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB277 | – | N | 18 | 8 | ≥ 1 & ≤3 | 5 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 2 | | |
| EB278 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB279 | – | N | 17 | 5 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 5 | | |
| EB280 | – | N | 18 | N/A | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB281 | – | N | 18 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 3 | | |
| EB282 | – | N | 20 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB283 | – | N | 25 | N/A | ≥ 1 & ≤3 | N/A | N/A | • Shrub is15’ north of GPS point.<br>• Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (Inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB284 | – | N | 22 | N/A | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB285 | – | N | 17 | 8 | ≥ 1 & ≤3 | 6 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB286 | – | N | 20 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 3 | | |
| EB287 | – | N | 8 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 0 | | |
| EB288 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB289 | – | N | 20 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | | | |
| | | | | | ≥ 5 | 3 | | |
| EB290 | – | N | 18 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 0 | | |
| EB291 | – | N | 18 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB292 | – | N | 17 | 5 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 0 | | |
| EB293 | – | N | 18 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 4 | | |
| EB294 | – | N | 20 | 7 | ≥ 1 & ≤3 | 6 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB295 | – | N | 20 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 3 | | |
| EB296 | – | N | 25 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB297 | – | N | 22 | 15 | ≥ 1 & ≤3 | 12 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB298 | – | N | 25 | 12 | ≥ 1 & ≤3 | 6 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 3 | | |
| EB299 | – | N | 18 | 6 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 3 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes | | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | | Stem Diameter (Inches) | Number of Stems | | |
| EB300 | – | N | 25 | N/A | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB301 | – | N | 19 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB302 | – | Y | 30 | 9 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 5 | | |
| EB303 | – | Y | 16 | 10 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 6 | | |
| | | | | | ≥ 5 | 1 | | |
| EB304 | – | Y | 25 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB305 | – | Y | 20 | 11 | ≥ 1 & ≤3 | 5 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 2 | | |
| EB306 | – | Y | 20 | 9 | ≥ 1 & ≤3 | 5 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 3 | | |
| EB307 | – | Y | 16 | N/A | ≥ 1 & ≤3 | N/A | N/A | Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |

## VELB Habitat Assessment

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| TRIMBLE GPS UNIT ID CODE | PHOTO NUMBER(S) | RIPARIAN? (Y/N) | APPROXIMATE HEIGHT OF SHRUB (FT) | TOTAL LIVE STEMS ≥ 1 INCH DIAMETER | TALLY OF STEM SIZES | | PRESENCE OF EXIT HOLES (Y/N) | COMMENTS |
|---|---|---|---|---|---|---|---|---|
| | | | | | STEM DIAMETER (INCHES) | NUMBER OF STEMS | | |
| EB308 | – | Y | 20 | 5 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 4 | | |
| EB309 | – | Y | 15 | N/A | ≥ 1 & ≤3 | N/A | N/A | • Shrub is 40' towards river from GPS point.<br>• Thick layer of grape and blackberry bramble prevents access to base of shrub. |
| | | | | | > 3 & < 5 | N/A | | |
| | | | | | ≥ 5 | N/A | | |
| EB310 | – | Y | 12 | 8 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 5 | | |
| | | | | | ≥ 5 | 0 | | |
| EB311 | – | Y | 35 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB312 | – | N | 12 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB313 | – | N | 10 | 5 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 1 | | |
| EB314 | – | N | 8 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB315 | – | N | 13 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB316 | – | N | 15 | 14 | ≥ 1 & ≤3 | 7 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 3 | | |
| EB317 | – | N | 14 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB318 | – | N | 14 | 9 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 1 | | |
| EB319 | – | N | 9 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 4 | | |
| EB320 | – | N | 8 | 4 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 0 | | |
| EB321 | – | N | 8 | 4 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 0 | | |
| EB322 | – | N | 10 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/28/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB323[1] | – | N | 12 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/29/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| TRIMBLE GPS UNIT ID CODE | PHOTO NUMBER(S) | RIPARIAN? (Y/N) | APPROXIMATE HEIGHT OF SHRUB (FT) | TOTAL LIVE STEMS ≥ 1 INCH DIAMETER | TALLY OF STEM SIZES | | PRESENCE OF EXIT HOLES (Y/N) | COMMENTS |
|---|---|---|---|---|---|---|---|---|
| | | | | | STEM DIAMETER (INCHES) | NUMBER OF STEMS | | |
| EB324[1] | – | N | 15-16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB325[1] | – | N | 15-16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB326[1] | – | N | 15-16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB327[1] | – | N | 15-16 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 3 | | |
| EB328 | – | N | 15-16 | 7 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB329 | – | N | 15-16 | 19 | ≥ 1 & ≤3 | 7 | N | |
| | | | | | > 3 & < 5 | 8 | | |
| | | | | | ≥ 5 | 4 | | |
| EB330 | – | N | 15-16 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 3 | | |
| EB331 | – | N | 15-16 | 7 | ≥ 1 & ≤3 | 5 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/29/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB332[1] | – | N | 15-16 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 3 | | |
| EB333[1] | – | N | 15-16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB334[1] | – | N | 15-16 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 3 | | |
| EB335[1] | – | N | 15-16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB336 | – | N | 15-16 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB337 | – | N | 15-16 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 3 | | |
| EB338[1] | – | N | 15-16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB339[1] | – | N | 15-16 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/29/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB340[1] | – | N | 9 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB341[1] | – | N | 15 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 4 | | |
| EB342[1] | – | N | 15 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB343[1] | – | N | 15 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB344 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB345 | – | N | 15 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB346 | – | N | 20 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB347 | – | N | 20 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

# VELB Habitat Assessment

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/29/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB348 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB349 | – | N | 18 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 3 | | |
| EB350 | – | N | 17 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB351 | – | N | 20 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB352 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB353 | – | N | 19 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB354 | – | N | 20 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB355 | – | N | 20 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

# VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/29/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (Inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB356 | – | N | 20 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB357 | – | N | 20 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB358 | – | N | 19 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB359 | – | N | 19 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB360 | – | N | 22 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB361 | – | N | 15 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB362 | – | N | 20 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB363 | – | N | 20 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/29/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB364 | – | N | 25 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB365 | – | N | 20 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB366 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB367 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB368 | – | N | 25 | 5 | ≥ 1 & ≤3 | 4 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB369 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB370 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB371 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

# VELB Habitat Assessment

## M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/29/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB372 | – | N | 12 | 9 | ≥ 1 & ≤3 | 7 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 0 | | |
| EB373 | – | N | 18 | 13 | ≥ 1 & ≤3 | 7 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 2 | | |
| EB374 | – | N | 12 | 6 | ≥ 1 & ≤3 | 5 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 0 | | |
| EB375 | – | N | 8 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 0 | | |
| EB376 | – | N | 15 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB377 | – | N | 17 | 4 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 0 | | |
| EB378 | – | N | 17 | 11 | ≥ 1 & ≤3 | 8 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 2 | | |
| EB379 | – | N | 13 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/29/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (Inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB380 | – | N | 16 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB381 | – | N | 16 | 3 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB382 | – | N | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB383 | – | N | 16 | 13 | ≥ 1 & ≤3 | 8 | N | |
| | | | | | > 3 & < 5 | 5 | | |
| | | | | | ≥ 5 | 0 | | |
| EB384 | – | N | 15 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB385 | – | N | 15 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB386 | – | N | 15 | 3 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB387 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

# VELB Habitat Assessment

## M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/29/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes: Stem Diameter (Inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB388 | – | N | 15 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB389 | – | N | 18 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB390 | – | N | 16 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB391 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB392 | – | N | 18 | 5 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB393 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB394 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB395 | – | N | 15 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/29/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB396 | – | N | 15 | 6 | ≥ 1 & ≤3 | 5 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB397 | – | N | 14 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB398 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB399 | – | N | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB400 | – | N | 17 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB401 | – | N | 17 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB402 | – | N | 15 | 9 | ≥ 1 & ≤3 | 5 | N | |
| | | | | | > 3 & < 5 | 3 | | |
| | | | | | ≥ 5 | 1 | | |
| EB403 | – | N | 15 | 7 | ≥ 1 & ≤3 | 7 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 0 | | |

## VELB Habitat Assessment

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/29/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| TRIMBLE GPS UNIT ID CODE | PHOTO NUMBER(S) | RIPARIAN? (Y/N) | APPROXIMATE HEIGHT OF SHRUB (FT) | TOTAL LIVE STEMS ≥ 1 INCH DIAMETER | TALLY OF STEM SIZES: STEM DIAMETER (INCHES) | TALLY OF STEM SIZES: NUMBER OF STEMS | PRESENCE OF EXIT HOLES (Y/N) | COMMENTS |
|---|---|---|---|---|---|---|---|---|
| EB404 | – | N | 15 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB405 | – | N | 13 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB406 | – | N | 12 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB407 | – | N | 15 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB408 | – | N | 14 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB409 | – | N | 6 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 0 | | |
| EB410 | – | N | 12 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB411 | – | N | 15 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/29/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 Inch Diameter | Tally of Stem Sizes | | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | | Stem Diameter (inches) | Number of Stems | | |
| EB412 | – | N | 15 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB413 | – | N | 15 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB414 | – | N | 15 | 8 | ≥ 1 & ≤3 | 7 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB415 | – | N | 15 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB416 | – | N | 14 | 3 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB417 | – | N | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB418 | – | N | 15 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB419 | – | N | 15 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

# VELB Habitat Assessment

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/29/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes | | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | | Stem Diameter (inches) | Number of Stems | | |
| EB420 | – | N | 15 | 6 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 2 | | |
| EB421 | – | N | 15 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 1 | | |
| EB422 | – | N | 15 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB423 | – | N | 14 | 4 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 4 | | |
| | | | | | ≥ 5 | 0 | | |
| EB424 | – | N | 14 | 6 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 1 | | |
| | | | | | ≥ 5 | 2 | | |
| EB425 | – | N | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB426 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB427 | – | N | 18 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |

# VELB Habitat Assessment

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/29/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| Trimble GPS Unit ID Code | Photo Number(s) | Riparian? (Y/N) | Approximate Height of Shrub (ft) | Total Live Stems ≥ 1 inch Diameter | Tally of Stem Sizes: Stem Diameter (inches) | Tally of Stem Sizes: Number of Stems | Presence of Exit Holes (Y/N) | Comments |
|---|---|---|---|---|---|---|---|---|
| EB428 | – | N | 20 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB429 | – | N | 16 | 6 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | | | |
| | | | | | ≥ 5 | 5 | | |
| EB430 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB431 | – | N | 18 | 2 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 2 | | |
| EB432 | – | N | 12 | 4 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB433 | – | N | 16 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB434 | – | N | 15 | 3 | ≥ 1 & ≤3 | 2 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB435 | – | N | 15 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

## VELB Habitat Assessment

M&T CHICO RANCH/LLANO SECO RANCHO FISH SCREEN FACILITY SHORT-TERM PROTECTION PROJECT

Date: 6/29/2012 Surveyors: SR/CM Comments: USFWS Capay Unit

| TRIMBLE GPS UNIT ID CODE | PHOTO NUMBER(S) | RIPARIAN? (Y/N) | APPROXIMATE HEIGHT OF SHRUB (FT) | TOTAL LIVE STEMS ≥ 1 INCH DIAMETER | TALLY OF STEM SIZES | | PRESENCE OF EXIT HOLES (Y/N) | COMMENTS |
|---|---|---|---|---|---|---|---|---|
| | | | | | STEM DIAMETER (INCHES) | NUMBER OF STEMS | | |
| EB436 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB437 | – | N | 17 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB438 | – | N | 15 | 6 | ≥ 1 & ≤3 | 3 | N | |
| | | | | | > 3 & < 5 | 2 | | |
| | | | | | ≥ 5 | 1 | | |
| EB439 | – | N | 18 | 1 | ≥ 1 & ≤3 | 0 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |
| EB440 | – | N | 16 | 2 | ≥ 1 & ≤3 | 1 | N | |
| | | | | | > 3 & < 5 | 0 | | |
| | | | | | ≥ 5 | 1 | | |

[1]When mapped, these shrubs were found to be more than 100 feet outside the survey area, and therefore are not discussed further in the survey report.

# Appendix D

Raptor Nesting Surveys Data Sheets

# Raptor Nesting Survey

M&T Chico Ranch/Llano Seco Rancho Fish Screen Facility Short-Term Protection Project

Date: 6/25–6/28/2012 Surveyors: SR/CM Comments: See below

| Location of Observation | Raptor Species Observed | Type of Observation (Nest, Fly-over, Perch) | Trimble ID code | Photo Number(s) | Description of Nest | Comments |
|---|---|---|---|---|---|---|
| M&T Chico Ranch (east side of Sacramento River) | Osprey | Active nest | Osprey Nest Active | – | Large nest on top of utility pole on River Road | Young in nest, two adults calling, tending nest, and foraging in Sacramento River. |
| M&T Chico Ranch (east side of Sacramento River) | Osprey | Flyover | Several observed soaring/foraging on opposite side of river | – | – | Searched for nest shown in 2007 HDR report. Not observed/no longer there. |
| M&T Chico Ranch (east side of Sacramento River) | Red tailed hawk (RTHA) | Flyover | – | – | – | |
| SRNWR (west side of Sacramento River) | Turkey vulture | Flyover | – | – | – | Multiple seen in vicinity. |
| SRNWR (west side of Sacramento River) | Red shouldered hawk | Perch | – | – | – | Vocal individual perched in tree in recreation area across Big Chico Creek, does not appear to be nesting. |
| SRNWR (west side of Sacramento River) | Swainson's hawk (SWHA) | Flyover | – | – | – | 2 SWHA harassing a RTHA. No nest tree found. |
| SRNWR (west side of Sacramento River) | Red tailed hawk | Flyover / foraging | – | – | – | Several RTHA foraging in area; no indication of nesting. |
| SRNWR (west side of Sacramento River) | Turkey vulture | Flyover / foraging | – | – | – | Dozens; seen feeding on carcass. |

# Attachment C
# Mine Plan Engineering Sheet

## LEGEND

| DESCRIPTION | SYMBOL |
|---|---|
| EXISTING CONTOUR | 153 |
| PROPOSED CONTOUR | 133 |
| PROPOSED DAYLIGHT LINE | |

## APPLICANT

M & T RANCH
3964 CHICO RIVER ROAD
CHICO, CA 95928-9633

## OPERATOR

M & T RANCH
3964 CHICO RIVER ROAD
CHICO, CA 95928-9633
(530) 518-9954

## AGENT

ENVIROMINE, INC
3511 CAMINO DEL RIO SOUTH, SUITE 403
SAN DIEGO, CA 92108
PHONE: (619) 284-8515 FAX: (619) 284-0115

## TOPOGRAPHY SOURCE

TROUBADOUR LAND SURVEYING
DATA COLLECTED ON MARCH 18, 2015

## PROJECT LOCATION

THE M & T RANCH IS LOCATED ENTIRELY WITHIN BUTTE COUNTY, CALIFORNIA AND IS SITUATED FIVE MILES SOUTH WEST OF THE CITY OF CHICO. THE RECLAMATION PLAN (RP) AREA ADDRESS IS 3964 CHICO RIVER ROAD, CHICO, CA 95928.

## LEGAL DESCRIPTION

THE RP AREA OCCUPIES APPROXIMATELY 10 ACRES, LOCATED GENERALLY ON THE WESTERN BORDER OF THE RANCH DE FARWELL. THE RP AREA IS IDENTIFIED BY THE BUTTE COUNTY ASSESSOR TO ENCOMPASS A PORTION OF ONE APN, OWNED BY PACIFIC REALTY ASSOCIATES.

## TABLE 1 RP AREA PARCEL TABLE

| APN | TOTAL ACRES | PROPOSED ACRES FOR PROJECT | OWNER | BUTTE COUNTY GENERAL PLAN LAND USE DESIGNATION | BUTTE COUNTY ZONING |
|---|---|---|---|---|---|
| 039-530-018 | 3,542.47 | 10 | PACIFIC REALTY ASSOCIATES, LP | RL | AG (AGRICULTURE) |

## NAME OF MINERAL PROPERTY

M & T RANCH

## PROPERTY AND MINERAL RIGHTS OWNERSHIP

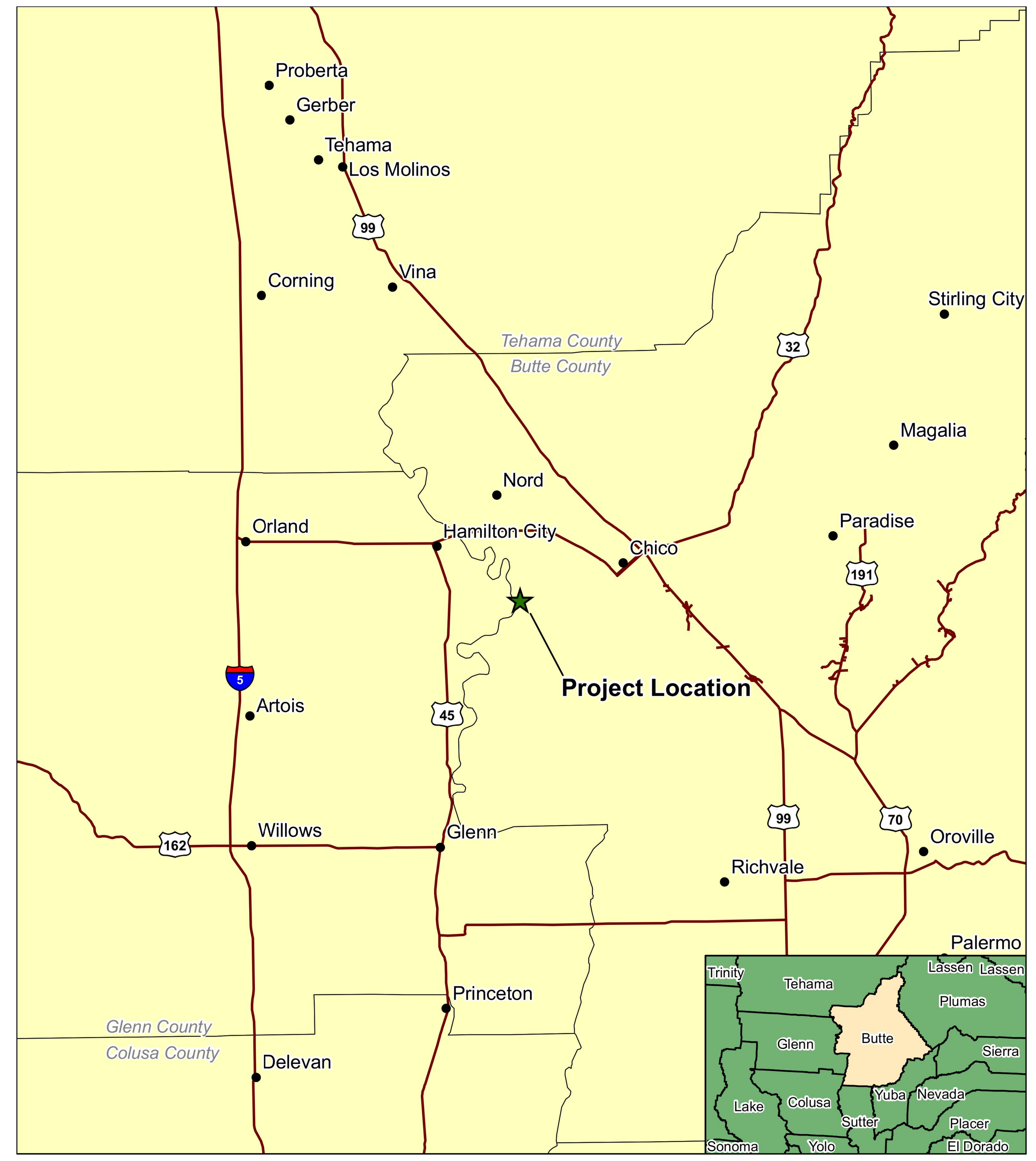
PACIFIC REALTY ASSOCIATES, LP
15350 SW SEQUOIA PARKWAY, SUITE 300
PORTLAND, OR 97224

## PROJECT DESCRIPTION

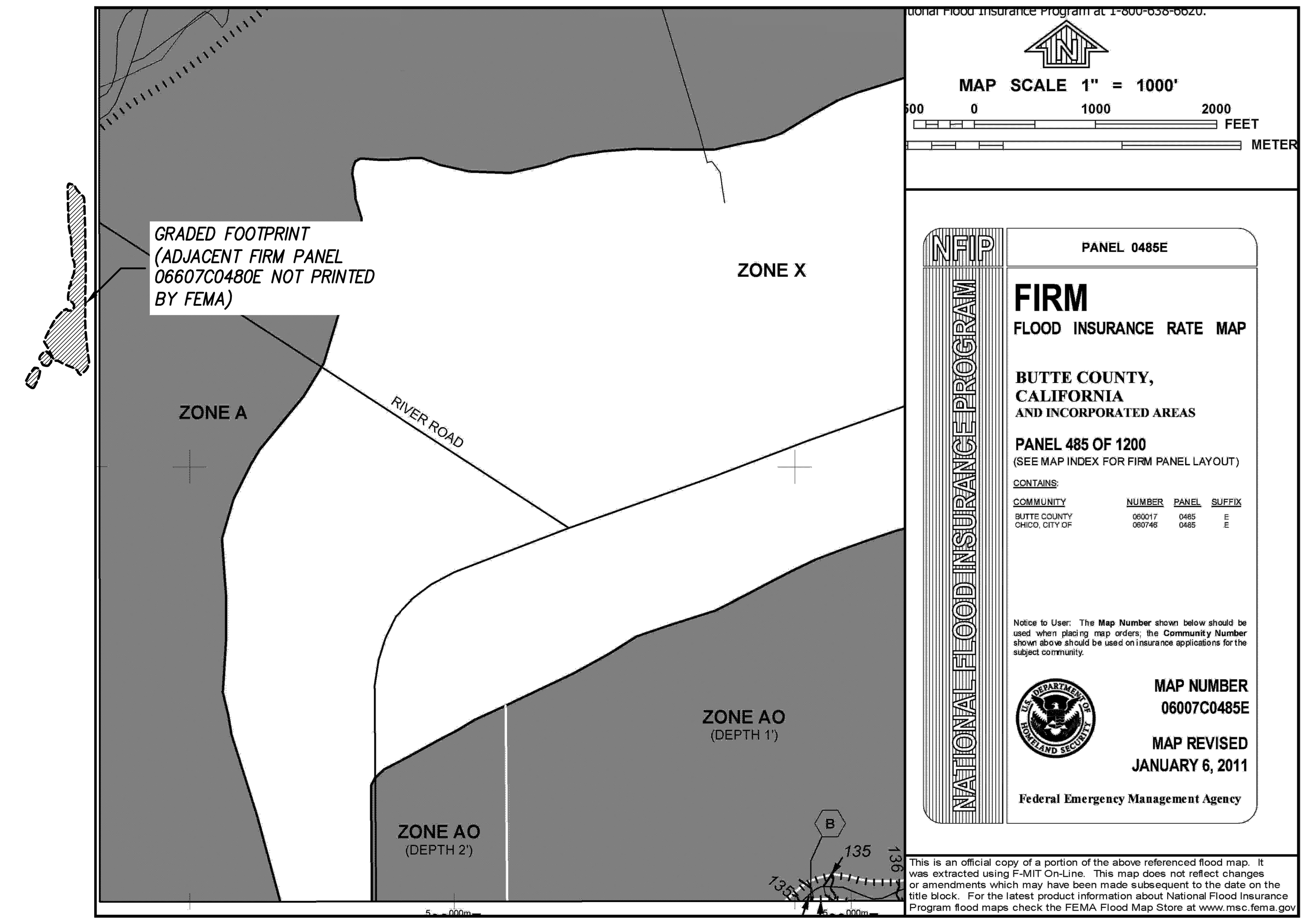
THE M & T RANCH IS AN NEW ALLUVIAL MINING OPERATION LOCATED SIX MILES SOUTH WEST OF THE CITY OF CHICO IN AN UNINCORPORATED AREA OF BUTTE COUNTY. M&T RANCH ("APPLICANT") IS APPLYING FOR A CONDITIONAL USE PERMIT ("CUP") AND RECLAMATION PLAN ("RP").

APPROVAL OF THE CUP WOULD ALLOW MINING OPERATIONS TO REMOVE APPROXIMATELY 300,000 TONS OF STOCKPILED DREDGE TAILINGS. THE LIMITS OF THE MINING OPERATION SUBJECT TO SUBJECT TO THE CUP AND RP WILL ENCOMPASS A TOTAL OF 10 ACRES. MINING OPERATIONS WILL REMOVE A STOCKPILE OF ALLUVIAL AGGREGATES THAT WERE DREDGED FROM THE SACRAMENTO RIVER FOR THE PURPOSES OF MAINTAINING PUMPING STATION INLETS LOCATED IN THE CHANNEL. MINING AND PROCESSING ACTIVITIES WILL OCCUR OVER A PERIOD OF APPROXIMATELY 10 YEARS, HOWEVER THIS TIMELINE MAY BE EXTENDED DEPENDING ON THE INTENSITY OF THE OPERATION. FOLLOWING THE COMPLETION OF MINING OPERATIONS THE RP AREA WILL BE RECLAIMED TO OPEN SPACE USES.

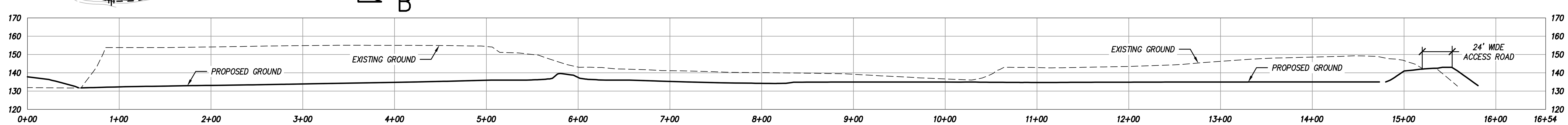
## REGIONAL LOCATION MAP



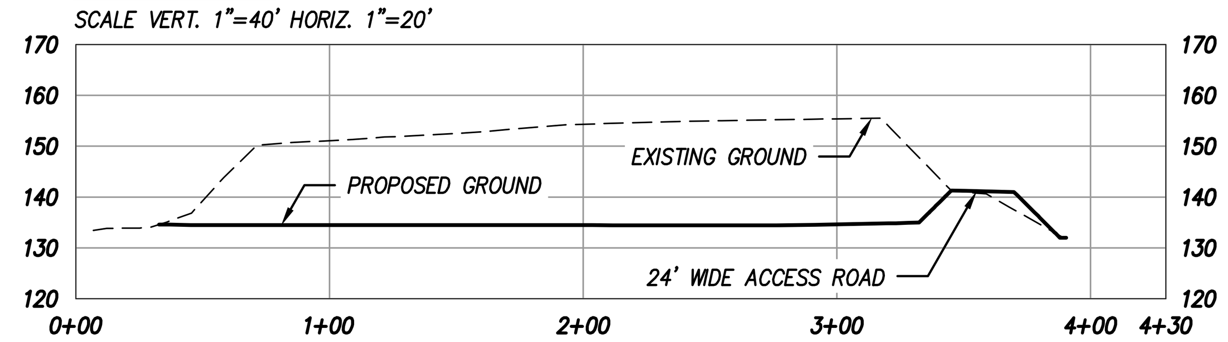

## FLOOD INSURANCE RATE MAP



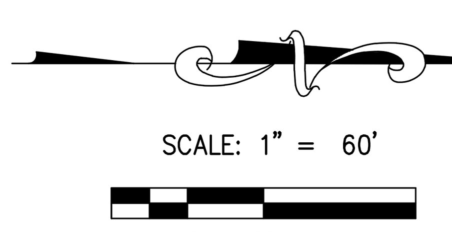





SECTION A-A
SCALE VERT. 1"=40' HORIZ. 1"=20'




SECTION B-B
SCALE VERT. 1"=40' HORIZ. 1"=20'




RECLAMATION PLAN
M&T RANCH

October 1, 2017

# APPENDIX B: EMISSION CALCULATIONS

# Ducks Unlimited Gravel Mining

**Butte County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| User Defined Industrial | 1.00 | User Defined Unit | 12.40 | 0.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Rural | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 71 |
| **Climate Zone** | 3 | | | **Operational Year** | 2020 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Site Area

Construction Phase - Only one phase of construction

Off-road Equipment - No arch coating phase

Off-road Equipment - No build construct phase

Off-road Equipment - No demo phase

Off-road Equipment - From PD

Off-road Equipment - No paving phase

Off-road Equipment - no site prep phase

Trips and VMT - From PD

Grading - From PD

Water And Wastewater - Converted 3 AFY to gallons/year

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstructionPhase | NumDays | 20.00 | 0.00 |
| tblConstructionPhase | NumDays | 30.00 | 167.00 |
| tblConstructionPhase | NumDays | 10.00 | 0.00 |
| tblConstructionPhase | NumDays | 300.00 | 0.00 |
| tblConstructionPhase | NumDays | 20.00 | 0.00 |
| tblConstructionPhase | NumDays | 20.00 | 0.00 |
| tblGrading | AcresOfGrading | 0.00 | 12.40 |
| tblGrading | MaterialExported | 0.00 | 100,000.00 |
| tblLandUse | LotAcreage | 0.00 | 12.40 |
| tblOffRoadEquipment | HorsePower | 85.00 | 440.00 |
| tblOffRoadEquipment | HorsePower | 85.00 | 120.00 |
| tblOffRoadEquipment | HorsePower | 158.00 | 239.00 |
| tblOffRoadEquipment | HorsePower | 402.00 | 280.00 |
| tblOffRoadEquipment | HorsePower | 402.00 | 200.00 |
| tblOffRoadEquipment | HorsePower | 97.00 | 267.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 4.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.80 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 4.50 |
| tblOffRoadEquipment | UsageHours | 7.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 7.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 6.00 | 0.00 |
| tblProjectCharacteristics | UrbanizationLevel | Urban | Rural |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 30.60 |
| tblTripsAndVMT | HaulingTripNumber | 9,888.00 | 9,170.00 |
| tblTripsAndVMT | VendorTripLength | 10.52 | 6.00 |
| tblTripsAndVMT | VendorTripNumber | 0.00 | 3.00 |
| tblTripsAndVMT | WorkerTripLength | 12.54 | 6.00 |
| tblTripsAndVMT | WorkerTripNumber | 15.00 | 13.00 |
| tblWater | OutdoorWaterUseRate | 0.00 | 977,553.00 |

## 2.0 Emissions Summary

### 2.1 Overall Construction

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2018 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2019 | 0.2884 | 3.6774 | 1.4542 | 9.3600e-003 | 0.1355 | 0.0835 | 0.2190 | 0.0356 | 0.0819 | 0.1175 | 0.0000 | 894.9961 | 894.9961 | 0.0722 | 0.0000 | 896.8002 |
| **Maximum** | **0.2884** | **3.6774** | **1.4542** | **9.3600e-003** | **0.1355** | **0.0835** | **0.2190** | **0.0356** | **0.0819** | **0.1175** | **0.0000** | **894.9961** | **894.9961** | **0.0722** | **0.0000** | **896.8002** |

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2018 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2019 | 0.2884 | 3.6774 | 1.4542 | 9.3600e-003 | 0.1355 | 0.0835 | 0.2190 | 0.0356 | 0.0819 | 0.1175 | 0.0000 | 894.9957 | 894.9957 | 0.0722 | 0.0000 | 896.7997 |
| **Maximum** | **0.2884** | **3.6774** | **1.4542** | **9.3600e-003** | **0.1355** | **0.0835** | **0.2190** | **0.0356** | **0.0819** | **0.1175** | **0.0000** | **894.9957** | **894.9957** | **0.0722** | **0.0000** | **896.7997** |

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

| **Quarter** | **Start Date** | **End Date** | **Maximum Unmitigated ROG + NOX (tons/quarter)** | **Maximum Mitigated ROG + NOX (tons/quarter)** |
|---|---|---|---|---|
| **4** | **1-2-2019** | **4-1-2019** | 0.0167 | 0.0167 |
| **5** | **4-2-2019** | **7-1-2019** | 1.5162 | 1.5162 |
| **6** | **7-2-2019** | **9-30-2019** | 1.5162 | 1.5162 |
| | | **Highest** | 1.5162 | 1.5162 |

## 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.0000 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0000 | 2.0000e-005 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.9953 | 0.9953 | 5.0000e-005 | 1.0000e-005 | 0.9992 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **0.0000** | **0.0000** | **1.0000e-005** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.9954** | **0.9954** | **5.0000e-005** | **1.0000e-005** | **0.9993** |

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.0000 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0000 | 2.0000e-005 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.9953 | 0.9953 | 5.0000e-005 | 1.0000e-005 | 0.9992 |
| **Total** | **0.0000** | **0.0000** | **1.0000e-005** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.9954** | **0.9954** | **5.0000e-005** | **1.0000e-005** | **0.9993** |

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

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition | Demolition | 4/2/2018 | 4/1/2018 | 5 | 0 | |
| 2 | Site Preparation | Site Preparation | 4/28/2018 | 4/27/2018 | 5 | 0 | |
| 3 | Building Construction | Building Construction | 6/23/2018 | 6/22/2018 | 5 | 0 | |
| 4 | Grading | Grading | 4/1/2019 | 11/19/2019 | 5 | 167 | |
| 5 | Paving | Paving | 8/17/2019 | 8/16/2019 | 5 | 0 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6 | Architectural Coating | Architectural Coating | 9/14/2019 | 9/13/2019 | 5 | 0 | |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 12.4**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0**

## OffRoad Equipment

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Demolition | Concrete/Industrial Saws | 0 | 0.00 | 81 | 0.73 |
| Demolition | Excavators | 0 | 0.00 | 158 | 0.38 |
| Demolition | Rubber Tired Dozers | 0 | 0.00 | 247 | 0.40 |
| Site Preparation | Rubber Tired Dozers | 0 | 0.00 | 247 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 0 | 0.00 | 97 | 0.37 |
| Grading | Crushing/Proc. Equipment | 1 | 6.80 | 440 | 0.78 |
| Grading | Crushing/Proc. Equipment | 1 | 6.80 | 120 | 0.78 |
| Grading | Excavators | 1 | 6.80 | 239 | 0.38 |
| Grading | Graders | 0 | 0.00 | 187 | 0.41 |
| Grading | Off-Highway Trucks | 0 | 0.00 | 280 | 0.38 |
| Grading | Off-Highway Trucks | 0 | 0.00 | 200 | 0.38 |
| Grading | Rubber Tired Dozers | 0 | 0.00 | 247 | 0.40 |
| Grading | Scrapers | 0 | 0.00 | 367 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | 1 | 4.50 | 267 | 0.37 |
| Building Construction | Cranes | 0 | 0.00 | 231 | 0.29 |
| Building Construction | Forklifts | 0 | 0.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 0 | 0.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 0 | 0.00 | 97 | 0.37 |
| Building Construction | Welders | 0 | 0.00 | 46 | 0.45 |
| Paving | Pavers | 0 | 0.00 | 130 | 0.42 |
| Paving | Paving Equipment | 0 | 0.00 | 132 | 0.36 |

| | | | | | |
|---|---|---|---|---|---|
| Paving | Rollers | 0 | 0.00 | 80 | 0.38 |
| Architectural Coating | Air Compressors | 0 | 0.00 | 78 | 0.48 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 0 | 0.00 | 0.00 | 0.00 | 12.54 | 10.52 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 0 | 0.00 | 0.00 | 0.00 | 12.54 | 10.52 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 6 | 13.00 | 3.00 | 9,170.00 | 6.00 | 6.00 | 30.60 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 0 | 0.00 | 0.00 | 0.00 | 12.54 | 10.52 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 0 | 0.00 | 0.00 | 0.00 | 12.54 | 10.52 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 0 | 0.00 | 0.00 | 0.00 | 12.54 | 10.52 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

## 3.2 Demolition - 2018

**Unmitigated Construction On-Site**

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

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## Mitigated Construction On-Site

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

## Mitigated Construction Off-Site

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

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 3.3 Site Preparation - 2018

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

# 3.4 Building Construction - 2018

## Unmitigated Construction On-Site

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

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## Mitigated Construction On-Site

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

| Total | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 3.5 Grading - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0111 | 0.0000 | 0.0111 | 1.3900e-003 | 0.0000 | 1.3900e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.2255 | 1.7410 | 1.1469 | 3.8000e-003 | | 0.0731 | 0.0731 | | 0.0720 | 0.0720 | 0.0000 | 367.1978 | 367.1978 | 0.0420 | 0.0000 | 368.2481 |
| **Total** | **0.2255** | **1.7410** | **1.1469** | **3.8000e-003** | **0.0111** | **0.0731** | **0.0842** | **1.3900e-003** | **0.0720** | **0.0734** | **0.0000** | **367.1978** | **367.1978** | **0.0420** | **0.0000** | **368.2481** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0573 | 1.9007 | 0.2663 | 5.4400e-003 | 0.1183 | 0.0101 | 0.1284 | 0.0326 | 9.6500e-003 | 0.0422 | 0.0000 | 517.1290 | 517.1290 | 0.0291 | 0.0000 | 517.8558 |
| Vendor | 1.1900e-003 | 0.0323 | 6.9300e-003 | 6.0000e-005 | 1.3500e-003 | 2.2000e-004 | 1.5700e-003 | 3.9000e-004 | 2.1000e-004 | 6.0000e-004 | 0.0000 | 6.0689 | 6.0689 | 8.1000e-004 | 0.0000 | 6.0891 |
| Worker | 4.3800e-003 | 3.4900e-003 | 0.0341 | 5.0000e-005 | 4.7500e-003 | 5.0000e-005 | 4.8000e-003 | 1.2600e-003 | 4.0000e-005 | 1.3100e-003 | 0.0000 | 4.6004 | 4.6004 | 2.7000e-004 | 0.0000 | 4.6072 |
| **Total** | **0.0629** | **1.9364** | **0.3074** | **5.5500e-003** | **0.1244** | **0.0104** | **0.1348** | **0.0342** | **9.9000e-003** | **0.0441** | **0.0000** | **527.7983** | **527.7983** | **0.0302** | **0.0000** | **528.5521** |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0111 | 0.0000 | 0.0111 | 1.3900e-003 | 0.0000 | 1.3900e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.2255 | 1.7410 | 1.1469 | 3.8000e-003 | | 0.0731 | 0.0731 | | 0.0720 | 0.0720 | 0.0000 | 367.1974 | 367.1974 | 0.0420 | 0.0000 | 368.2477 |
| **Total** | **0.2255** | **1.7410** | **1.1469** | **3.8000e-003** | **0.0111** | **0.0731** | **0.0842** | **1.3900e-003** | **0.0720** | **0.0734** | **0.0000** | **367.1974** | **367.1974** | **0.0420** | **0.0000** | **368.2477** |

## Mitigated Construction Off-Site

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

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | 0.0573 | 1.9007 | 0.2663 | 5.4400e-003 | 0.1183 | 0.0101 | 0.1284 | 0.0326 | 9.6500e-003 | 0.0422 | 0.0000 | 517.1290 | 517.1290 | 0.0291 | 0.0000 | 517.8558 |
| Vendor | 1.1900e-003 | 0.0323 | 6.9300e-003 | 6.0000e-005 | 1.3500e-003 | 2.2000e-004 | 1.5700e-003 | 3.9000e-004 | 2.1000e-004 | 6.0000e-004 | 0.0000 | 6.0689 | 6.0689 | 8.1000e-004 | 0.0000 | 6.0891 |
| Worker | 4.3800e-003 | 3.4900e-003 | 0.0341 | 5.0000e-005 | 4.7500e-003 | 5.0000e-005 | 4.8000e-003 | 1.2600e-003 | 4.0000e-005 | 1.3100e-003 | 0.0000 | 4.6004 | 4.6004 | 2.7000e-004 | 0.0000 | 4.6072 |
| **Total** | **0.0629** | **1.9364** | **0.3074** | **5.5500e-003** | **0.1244** | **0.0104** | **0.1348** | **0.0342** | **9.9000e-003** | **0.0441** | **0.0000** | **527.7983** | **527.7983** | **0.0302** | **0.0000** | **528.5521** |

## 3.6 Paving - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Paving | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Paving | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 3.7 Architectural Coating - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## Mitigated Construction On-Site

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

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

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

### 4.2 Trip Summary Information

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

### 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C- | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| User Defined Industrial | 10.52 | 10.52 | 10.52 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |

### 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| User Defined Industrial | 0.501921 | 0.035611 | 0.182311 | 0.126024 | 0.038315 | 0.007069 | 0.018442 | 0.078244 | 0.001676 | 0.001531 | 0.006060 | 0.001297 | 0.001498 |

## 5.0 Energy Detail

Historical Energy Use: N

### 5.1 Mitigation Measures Energy

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

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NaturalGas Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NaturalGas Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| User Defined Industrial | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| User Defined Industrial | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

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

**Mitigated**

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

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

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

## 6.2 Area by SubCategory

**Unmitigated**

| SubCategory | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.0000 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0000 | 2.0000e-005 |
| **Total** | **0.0000** | **0.0000** | **1.0000e-005** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **2.0000e-005** | **2.0000e-005** | **0.0000** | **0.0000** | **2.0000e-005** |

**Mitigated**

| SubCategory | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landscaping | 0.0000 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0000 | 2.0000e-005 |
| **Total** | **0.0000** | **0.0000** | **1.0000e-005** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **2.0000e-005** | **2.0000e-005** | **0.0000** | **0.0000** | **2.0000e-005** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 0.9953 | 5.0000e-005 | 1.0000e-005 | 0.9992 |
| Unmitigated | 0.9953 | 5.0000e-005 | 1.0000e-005 | 0.9992 |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| User Defined Industrial | 0 / 0.977553 | 0.9953 | 5.0000e-005 | 1.0000e-005 | 0.9992 |
| **Total** | | **0.9953** | **5.0000e-005** | **1.0000e-005** | **0.9992** |

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| User Defined Industrial | 0 / 0.977553 | 0.9953 | 5.0000e-005 | 1.0000e-005 | 0.9992 |
| **Total** | | **0.9953** | **5.0000e-005** | **1.0000e-005** | **0.9992** |

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

**Category/Year**

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

### 8.2 Waste by Land Use

**Unmitigated**

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

**Mitigated**

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

## 9.0 Operational Offroad

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

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

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

**Boilers**

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

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# Ducks Unlimited Gravel Mining

**Butte County, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| User Defined Industrial | 1.00 | User Defined Unit | 12.40 | 0.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Rural | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 71 |
| **Climate Zone** | 3 | | | **Operational Year** | 2020 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Site Area

Construction Phase - Only one phase of construction

Off-road Equipment - No arch coating phase

Off-road Equipment - No build construct phase

Off-road Equipment - No demo phase

Off-road Equipment - From PD

Off-road Equipment - No paving phase

Off-road Equipment - no site prep phase

Trips and VMT - From PD

Grading - From PD

Water And Wastewater - Converted 3 AFY to gallons/year

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstructionPhase | NumDays | 20.00 | 0.00 |
| tblConstructionPhase | NumDays | 30.00 | 167.00 |
| tblConstructionPhase | NumDays | 10.00 | 0.00 |
| tblConstructionPhase | NumDays | 300.00 | 0.00 |
| tblConstructionPhase | NumDays | 20.00 | 0.00 |
| tblConstructionPhase | NumDays | 20.00 | 0.00 |
| tblGrading | AcresOfGrading | 0.00 | 12.40 |
| tblGrading | MaterialExported | 0.00 | 100,000.00 |
| tblLandUse | LotAcreage | 0.00 | 12.40 |
| tblOffRoadEquipment | HorsePower | 85.00 | 440.00 |
| tblOffRoadEquipment | HorsePower | 85.00 | 120.00 |
| tblOffRoadEquipment | HorsePower | 158.00 | 239.00 |
| tblOffRoadEquipment | HorsePower | 402.00 | 280.00 |
| tblOffRoadEquipment | HorsePower | 402.00 | 200.00 |
| tblOffRoadEquipment | HorsePower | 97.00 | 267.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 4.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.80 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 4.50 |
| tblOffRoadEquipment | UsageHours | 7.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 7.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 6.00 | 0.00 |
| tblProjectCharacteristics | UrbanizationLevel | Urban | Rural |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 30.60 |
| tblTripsAndVMT | HaulingTripNumber | 9,888.00 | 9,170.00 |
| tblTripsAndVMT | VendorTripLength | 10.52 | 6.00 |
| tblTripsAndVMT | VendorTripNumber | 0.00 | 3.00 |
| tblTripsAndVMT | WorkerTripLength | 12.54 | 6.00 |
| tblTripsAndVMT | WorkerTripNumber | 15.00 | 13.00 |
| tblWater | OutdoorWaterUseRate | 0.00 | 977,553.00 |

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2018 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2019 | 3.4592 | 43.1937 | 17.3308 | 0.1126 | 1.6796 | 0.9990 | 2.6786 | 0.4406 | 0.9799 | 1.4205 | 0.0000 | 11,869.5968 | 11,869.5968 | 0.9332 | 0.0000 | 11,892.9275 |
| **Maximum** | **3.4592** | **43.1937** | **17.3308** | **0.1126** | **1.6796** | **0.9990** | **2.6786** | **0.4406** | **0.9799** | **1.4205** | **0.0000** | **11,869.5968** | **11,869.5968** | **0.9332** | **0.0000** | **11,892.9275** |

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2018 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2019 | 3.4592 | 43.1937 | 17.3308 | 0.1126 | 1.6796 | 0.9990 | 2.6786 | 0.4406 | 0.9799 | 1.4205 | 0.0000 | 11,869.5968 | 11,869.5968 | 0.9332 | 0.0000 | 11,892.9275 |
| **Maximum** | **3.4592** | **43.1937** | **17.3308** | **0.1126** | **1.6796** | **0.9990** | **2.6786** | **0.4406** | **0.9799** | **1.4205** | **0.0000** | **11,869.5968** | **11,869.5968** | **0.9332** | **0.0000** | **11,892.9275** |

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

## 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 1.0000e-005 | 0.0000 | 1.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 2.2000e-004 | 2.2000e-004 | 0.0000 | | 2.3000e-004 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| **Total** | **1.0000e-005** | **0.0000** | **1.0000e-004** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **2.2000e-004** | **2.2000e-004** | **0.0000** | **0.0000** | **2.3000e-004** |

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Category | lb/day | | | | | | | | | | lb/day | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area | 1.0000e-005 | 0.0000 | 1.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 2.2000e-004 | 2.2000e-004 | 0.0000 | | 2.3000e-004 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| **Total** | **1.0000e-005** | **0.0000** | **1.0000e-004** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **2.2000e-004** | **2.2000e-004** | **0.0000** | **0.0000** | **2.3000e-004** |

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

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition | Demolition | 4/2/2018 | 4/1/2018 | 5 | 0 | |
| 2 | Site Preparation | Site Preparation | 4/28/2018 | 4/27/2018 | 5 | 0 | |
| 3 | Building Construction | Building Construction | 6/23/2018 | 6/22/2018 | 5 | 0 | |
| 4 | Grading | Grading | 4/1/2019 | 11/19/2019 | 5 | 167 | |
| 5 | Paving | Paving | 8/17/2019 | 8/16/2019 | 5 | 0 | |
| 6 | Architectural Coating | Architectural Coating | 9/14/2019 | 9/13/2019 | 5 | 0 | |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 12.4**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Demolition | Concrete/Industrial Saws | 0 | 0.00 | 81 | 0.73 |

| | | | | | |
|---|---|---|---|---|---|
| Demolition | Excavators | 0 | 0.00 | 158 | 0.38 |
| Demolition | Rubber Tired Dozers | 0 | 0.00 | 247 | 0.40 |
| Site Preparation | Rubber Tired Dozers | 0 | 0.00 | 247 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 0 | 0.00 | 97 | 0.37 |
| Grading | Crushing/Proc. Equipment | 1 | 6.80 | 440 | 0.78 |
| Grading | Crushing/Proc. Equipment | 1 | 6.80 | 120 | 0.78 |
| Grading | Excavators | 1 | 6.80 | 239 | 0.38 |
| Grading | Graders | 0 | 0.00 | 187 | 0.41 |
| Grading | Off-Highway Trucks | 0 | 0.00 | 280 | 0.38 |
| Grading | Off-Highway Trucks | 0 | 0.00 | 200 | 0.38 |
| Grading | Rubber Tired Dozers | 0 | 0.00 | 247 | 0.40 |
| Grading | Scrapers | 0 | 0.00 | 367 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | 1 | 4.50 | 267 | 0.37 |
| Building Construction | Cranes | 0 | 0.00 | 231 | 0.29 |
| Building Construction | Forklifts | 0 | 0.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 0 | 0.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 0 | 0.00 | 97 | 0.37 |
| Building Construction | Welders | 0 | 0.00 | 46 | 0.45 |
| Paving | Pavers | 0 | 0.00 | 130 | 0.42 |
| Paving | Paving Equipment | 0 | 0.00 | 132 | 0.36 |
| Paving | Rollers | 0 | 0.00 | 80 | 0.38 |
| Architectural Coating | Air Compressors | 0 | 0.00 | 78 | 0.48 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 0 | 0.00 | 0.00 | 0.00 | 12.54 | 10.52 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 0 | 0.00 | 0.00 | 0.00 | 12.54 | 10.52 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 6 | 13.00 | 3.00 | 9,170.00 | 6.00 | 6.00 | 30.60 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 0 | 0.00 | 0.00 | 0.00 | 12.54 | 10.52 | 20.00 | LD_Mix | HDT_Mix | HHDT |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Paving | 0 | 0.00 | 0.00 | 0.00 | 12.54 | 10.52 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 0 | 0.00 | 0.00 | 0.00 | 12.54 | 10.52 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

## 3.2 Demolition - 2018

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 3.3 Site Preparation - 2018

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Category | lb/day | | | | | | | | | | lb/day | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fugitive Dust | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 3.4 Building Construction - 2018

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 3.5 Grading - 2019

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.1323 | 0.0000 | 0.1323 | 0.0166 | 0.0000 | 0.0166 | | | 0.0000 | | | 0.0000 |
| Off-Road | 2.7007 | 20.8499 | 13.7348 | 0.0455 | | 0.8760 | 0.8760 | | 0.8622 | 0.8622 | | 4,847.5005 | 4,847.5005 | 0.5546 | | 4,861.3659 |
| **Total** | **2.7007** | **20.8499** | **13.7348** | **0.0455** | **0.1323** | **0.8760** | **1.0083** | **0.0166** | **0.8622** | **0.8788** | | **4,847.5005** | **4,847.5005** | **0.5546** | | **4,861.3659** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.6793 | 21.9262 | 3.0566 | 0.0656 | 1.4711 | 0.1199 | 1.5910 | 0.4034 | 0.1147 | 0.5181 | | 6,873.3745 | 6,873.3745 | 0.3645 | | 6,882.4873 |
| Vendor | 0.0141 | 0.3795 | 0.0768 | 7.8000e-004 | 0.0167 | 2.6500e-003 | 0.0194 | 4.8200e-003 | 2.5300e-003 | 7.3500e-003 | | 81.4268 | 81.4268 | 0.0101 | | 81.6793 |
| Worker | 0.0651 | 0.0381 | 0.4627 | 6.8000e-004 | 0.0594 | 5.5000e-004 | 0.0599 | 0.0158 | 5.1000e-004 | 0.0163 | | 67.2951 | 67.2951 | 4.0000e-003 | | 67.3950 |
| **Total** | **0.7585** | **22.3438** | **3.5960** | **0.0671** | **1.5473** | **0.1231** | **1.6703** | **0.4240** | **0.1177** | **0.5417** | | **7,022.0964** | **7,022.0964** | **0.3786** | | **7,031.5616** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.1323 | 0.0000 | 0.1323 | 0.0166 | 0.0000 | 0.0166 | | | 0.0000 | | | 0.0000 |
| Off-Road | 2.7007 | 20.8499 | 13.7348 | 0.0455 | | 0.8760 | 0.8760 | | 0.8622 | 0.8622 | 0.0000 | 4,847.5005 | 4,847.5005 | 0.5546 | | 4,861.3659 |
| **Total** | **2.7007** | **20.8499** | **13.7348** | **0.0455** | **0.1323** | **0.8760** | **1.0083** | **0.0166** | **0.8622** | **0.8788** | **0.0000** | **4,847.5005** | **4,847.5005** | **0.5546** | | **4,861.3659** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.6793 | 21.9262 | 3.0566 | 0.0656 | 1.4711 | 0.1199 | 1.5910 | 0.4034 | 0.1147 | 0.5181 | | 6,873.3745 | 6,873.3745 | 0.3645 | | 6,882.4873 |
| Vendor | 0.0141 | 0.3795 | 0.0768 | 7.8000e-004 | 0.0167 | 2.6500e-003 | 0.0194 | 4.8200e-003 | 2.5300e-003 | 7.3500e-003 | | 81.4268 | 81.4268 | 0.0101 | | 81.6793 |
| Worker | 0.0651 | 0.0381 | 0.4627 | 6.8000e-004 | 0.0594 | 5.5000e-004 | 0.0599 | 0.0158 | 5.1000e-004 | 0.0163 | | 67.2951 | 67.2951 | 4.0000e-003 | | 67.3950 |
| **Total** | **0.7585** | **22.3438** | **3.5960** | **0.0671** | **1.5473** | **0.1231** | **1.6703** | **0.4240** | **0.1177** | **0.5417** | | **7,022.0964** | **7,022.0964** | **0.3786** | | **7,031.5616** |

## 3.6 Paving - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Paving | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Paving | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 3.7 Architectural Coating - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |

### 4.2 Trip Summary Information

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

### 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| User Defined Industrial | 10.52 | 10.52 | 10.52 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |

### 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| User Defined Industrial | 0.501921 | 0.035611 | 0.182311 | 0.126024 | 0.038315 | 0.007069 | 0.018442 | 0.078244 | 0.001676 | 0.001531 | 0.006060 | 0.001297 | 0.001498 |

## 5.0 Energy Detail

Historical Energy Use: N

### 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NaturalGas Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| User Defined Industrial | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

| Total | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| User Defined Industrial | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 1.0000e-005 | 0.0000 | 1.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 2.2000e-004 | 2.2000e-004 | 0.0000 | | 2.3000e-004 |
| Unmitigated | 1.0000e-005 | 0.0000 | 1.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 2.2000e-004 | 2.2000e-004 | 0.0000 | | 2.3000e-004 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 1.0000e-005 | 0.0000 | 1.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 2.2000e-004 | 2.2000e-004 | 0.0000 | | 2.3000e-004 |
| **Total** | **1.0000e-005** | **0.0000** | **1.0000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **2.2000e-004** | **2.2000e-004** | **0.0000** | | **2.3000e-004** |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 1.0000e-005 | 0.0000 | 1.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 2.2000e-004 | 2.2000e-004 | 0.0000 | | 2.3000e-004 |
| **Total** | **1.0000e-005** | **0.0000** | **1.0000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **2.2000e-004** | **2.2000e-004** | **0.0000** | | **2.3000e-004** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

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

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

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

**Boilers**

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

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# APPENDIX C: BIOLOGICAL RESOURCES SPECIES LISTS

# C-1: California Natural Diversity Database Species List

# Selected Elements by Scientific Name

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Query Criteria:** Quad<span style='color:Red'> IS </span>(Foster Island (3912271)<span style='color:Red'> OR </span>Ord Ferry (3912168)<span style='color:Red'> OR </span>Llano Seco (3912158))

| Species | Element Code | Federal Status | State Status | Global Rank | State Rank | Rare Plant Rank/CDFW SSC or FP |
|---|---|---|---|---|---|---|
| ***Agelaius tricolor***<br>tricolored blackbird | ABPBXB0020 | None | Candidate Endangered | G2G3 | S1S2 | SSC |
| ***Anthicus antiochensis***<br>Antioch Dunes anthicid beetle | IICOL49020 | None | None | G1 | S1 | |
| ***Anthicus sacramento***<br>Sacramento anthicid beetle | IICOL49010 | None | None | G1 | S1 | |
| ***Ardea alba***<br>great egret | ABNGA04040 | None | None | G5 | S4 | |
| ***Ardea herodias***<br>great blue heron | ABNGA04010 | None | None | G5 | S4 | |
| ***Astragalus tener var. ferrisiae***<br>Ferris' milk-vetch | PDFAB0F8R3 | None | None | G2T1 | S1 | 1B.1 |
| ***Athene cunicularia***<br>burrowing owl | ABNSB10010 | None | None | G4 | S3 | SSC |
| ***Branchinecta lynchi***<br>vernal pool fairy shrimp | ICBRA03030 | Threatened | None | G3 | S3 | |
| ***Brasenia schreberi***<br>watershield | PDCAB01010 | None | None | G5 | S3 | 2B.3 |
| ***Buteo swainsoni***<br>Swainson's hawk | ABNKC19070 | None | Threatened | G5 | S3 | |
| ***Coastal and Valley Freshwater Marsh***<br>Coastal and Valley Freshwater Marsh | CTT52410CA | None | None | G3 | S2.1 | |
| ***Coccyzus americanus occidentalis***<br>western yellow-billed cuckoo | ABNRB02022 | Threatened | Endangered | G5T2T3 | S1 | |
| ***Cryptantha crinita***<br>silky cryptantha | PDBOR0A0Q0 | None | None | G2 | S2 | 1B.2 |
| ***Desmocerus californicus dimorphus***<br>valley elderberry longhorn beetle | IICOL48011 | Threatened | None | G3T2 | S2 | |
| ***Emys marmorata***<br>western pond turtle | ARAAD02030 | None | None | G3G4 | S3 | SSC |
| ***Erethizon dorsatum***<br>North American porcupine | AMAFJ01010 | None | None | G5 | S3 | |
| ***Eumops perotis californicus***<br>western mastiff bat | AMACD02011 | None | None | G5T4 | S3S4 | SSC |
| ***Great Valley Cottonwood Riparian Forest***<br>Great Valley Cottonwood Riparian Forest | CTT61410CA | None | None | G2 | S2.1 | |
| ***Great Valley Mixed Riparian Forest***<br>Great Valley Mixed Riparian Forest | CTT61420CA | None | None | G2 | S2.2 | |

# Selected Elements by Scientific Name

**California Department of Fish and Wildlife**

**California Natural Diversity Database**

| Species | Element Code | Federal Status | State Status | Global Rank | State Rank | Rare Plant Rank/CDFW SSC or FP |
|---|---|---|---|---|---|---|
| ***Great Valley Valley Oak Riparian Forest***<br>Great Valley Valley Oak Riparian Forest | CTT61430CA | None | None | G1 | S1.1 | |
| ***Great Valley Willow Scrub***<br>Great Valley Willow Scrub | CTT63410CA | None | None | G3 | S3.2 | |
| ***Hibiscus lasiocarpos var. occidentalis***<br>woolly rose-mallow | PDMAL0H0R3 | None | None | G5T3 | S3 | 1B.2 |
| ***Lasionycteris noctivagans***<br>silver-haired bat | AMACC02010 | None | None | G5 | S3S4 | |
| ***Lasiurus blossevillii***<br>western red bat | AMACC05060 | None | None | G5 | S3 | SSC |
| ***Lasiurus cinereus***<br>hoary bat | AMACC05030 | None | None | G5 | S4 | |
| ***Lepidurus packardi***<br>vernal pool tadpole shrimp | ICBRA10010 | Endangered | None | G4 | S3S4 | |
| ***Linderiella occidentalis***<br>California linderiella | ICBRA06010 | None | None | G2G3 | S2S3 | |
| ***Myotis yumanensis***<br>Yuma myotis | AMACC01020 | None | None | G5 | S4 | |
| ***Oncorhynchus mykiss irideus pop. 11***<br>steelhead - Central Valley DPS | AFCHA0209K | Threatened | None | G5T2Q | S2 | |
| ***Pandion haliaetus***<br>osprey | ABNKC01010 | None | None | G5 | S4 | WL |
| ***Riparia riparia***<br>bank swallow | ABPAU08010 | None | Threatened | G5 | S2 | |
| ***Taxidea taxus***<br>American badger | AMAJF04010 | None | None | G5 | S3 | SSC |
| ***Thamnophis gigas***<br>giant gartersnake | ARADB36150 | Threatened | Threatened | G2 | S2 | |
| ***Tuctoria greenei***<br>Greene's tuctoria | PMPOA6N010 | Endangered | Rare | G1 | S1 | 1B.1 |
| ***Wolffia brasiliensis***<br>Brazilian watermeal | PMLEM03020 | None | None | G5 | S2 | 2B.3 |

**Record Count: 35**

# C-2: U.S. Fish and Wildlife Service Resource List

**IPaC** Information for Planning and Consultation **U.S. Fish & Wildlife Service**

# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.



## Location

Butte, Glenn and Tehama counties, California


## Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.



Listed species

[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

# Birds

| NAME | STATUS |
|---|---|
| Yellow-billed Cuckoo *Coccyzus americanus*<br>There is **proposed** critical habitat for this species. Your location overlaps the critical habitat.<br>https://ecos.fws.gov/ecp/species/3911 | Threatened |

# Reptiles

| NAME | STATUS |
|---|---|
| Giant Garter Snake *Thamnophis gigas*<br>No critical habitat has been designated for this species.<br>https://ecos.fws.gov/ecp/species/4482 | Threatened |

# Amphibians

| NAME | STATUS |
|---|---|
| California Red-legged Frog *Rana draytonii*<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/2891 | Threatened |

# Fishes

| NAME | STATUS |
|---|---|
| Delta Smelt *Hypomesus transpacificus*<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/321 | Threatened |

# Insects

| NAME | STATUS |
|---|---|
| Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/7850 | Threatened |

## Crustaceans

| NAME | STATUS |
|---|---|
| Conservancy Fairy Shrimp Branchinecta conservatio<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/8246 | Endangered |
| Vernal Pool Fairy Shrimp Branchinecta lynchi<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/498 | Threatened |
| Vernal Pool Tadpole Shrimp Lepidurus packardi<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/2246 | Endangered |

## Flowering Plants

| NAME | STATUS |
|---|---|
| Butte County Meadowfoam Limnanthes floccosa ssp. californica<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/4223 | Endangered |
| Greene's Tuctoria Tuctoria greenei<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/1573 | Endangered |
| Hoover's Spurge Chamaesyce hooveri<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/3019 | Threatened |
| Slender Orcutt Grass Orcuttia tenuis<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/1063 | Threatened |



## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

| NAME | TYPE |
|---|---|
| Yellow-billed Cuckoo Coccyzus americanus https://ecos.fws.gov/ecp/species/3911#crithab | Proposed |

# Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act

[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

| NAME | BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY |
|---|---|

BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle Haliaeetus leucocephalus — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1626

Burrowing Owl Athene cunicularia — Breeds Mar 15 to Aug 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9737

California Thrasher Toxostoma redivivum — Breeds Jan 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Clark's Grebe Aechmophorus clarkii — Breeds Jan 1 to Dec 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Costa's Hummingbird Calypte costae — Breeds Jan 15 to Jun 10

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9470

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Lewis's Woodpecker Melanerpes lewis — Breeds Apr 20 to Sep 30
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9408

Long-billed Curlew Numenius americanus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/5511

Marbled Godwit Limosa fedoa — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Rufous Hummingbird selasphorus rufus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Song Sparrow Melospiza melodia — Breeds Feb 20 to Sep 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Spotted Towhee Pipilo maculatus clementae — Breeds Apr 15 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/4243

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Whimbrel Numenius phaeopus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9483

Willet Tringa semipalmata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726



# Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ “Proper Interpretation and Use of Your Migratory Bird Report” before using or attempting to interpret this report.

**Probability of Presence (■)**

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For

example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

**Breeding Season (■)**
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

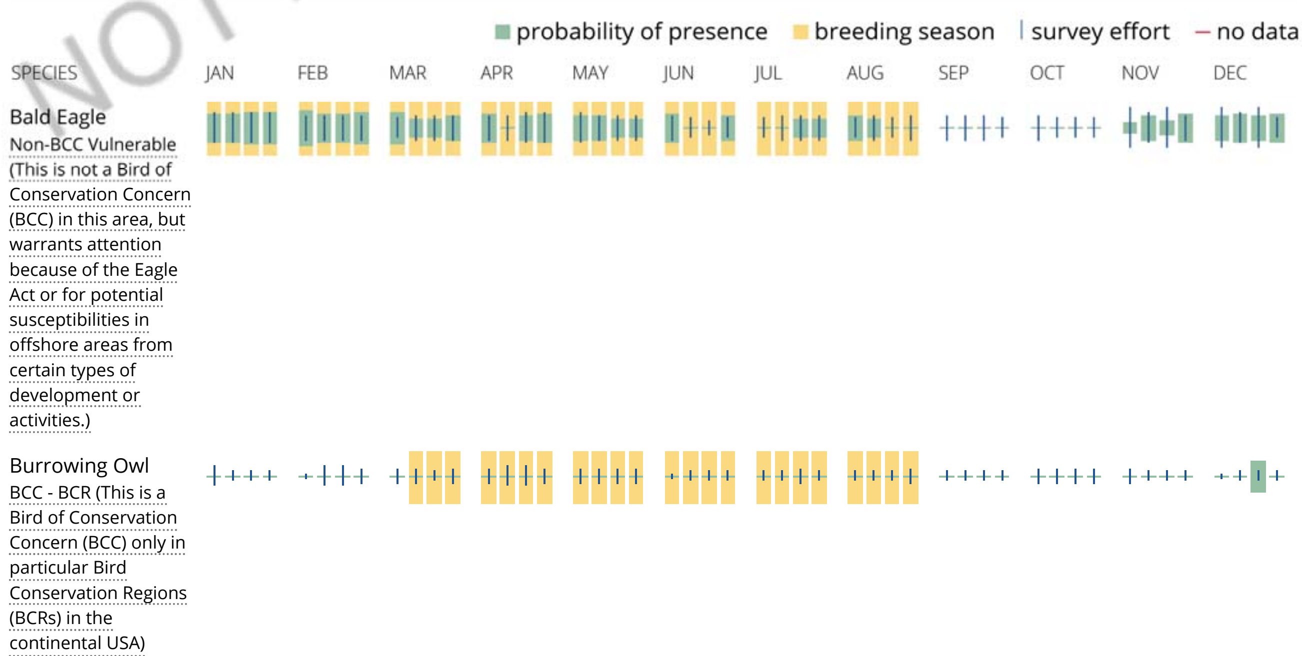
**Survey Effort (|)**
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

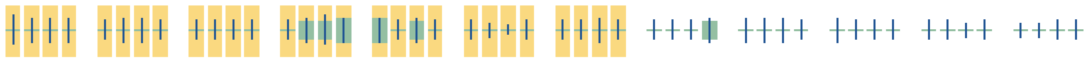
**No Data (–)**
A week is marked as having no data if there were no survey events for that week.

**Survey Timeframe**
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

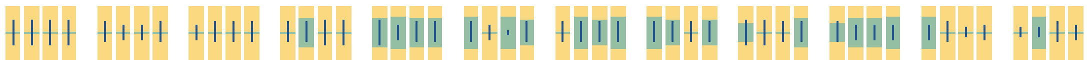




California Thrasher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Clark's Grebe
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



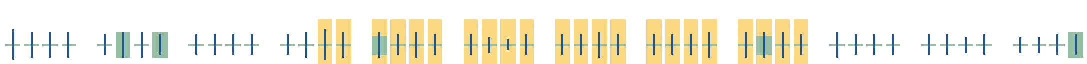
Common Yellowthroat
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Costa's Hummingbird
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

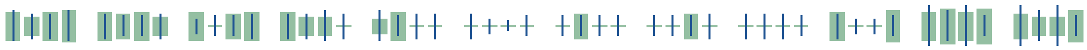
Golden Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Lawrence's Goldfinch
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Lewis's Woodpecker
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

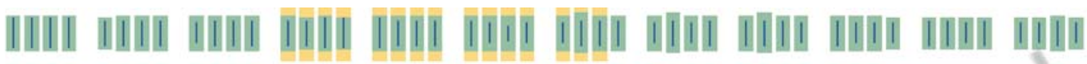


Long-billed Curlew
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



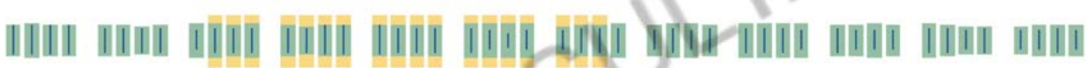
Marbled Godwit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Nuttall's Woodpecker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

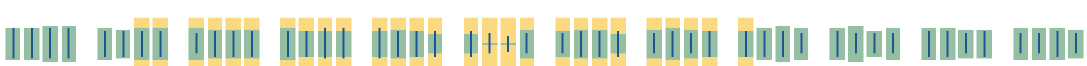
Oak Titmouse
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



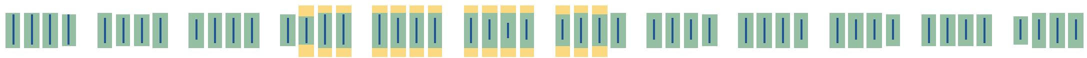
Rufous Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Short-billed Dowitcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

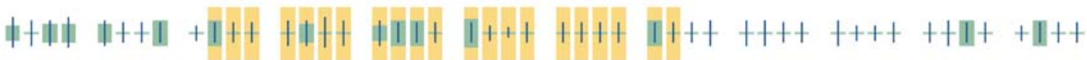
Song Sparrow
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Spotted Towhee
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Tricolored Blackbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Whimbrel
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Willet
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Wrentit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Yellow-billed Magpie
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the migratory birds potentially occurring in my specified location?**

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

**How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

**What are the levels of concern for migratory birds?**

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

**Details about birds that are potentially affected by offshore projects**

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review.

Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

#### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

#### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.



# Facilities

## National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

This location overlaps the following National Wildlife Refuge lands:

| LAND | ACRES |
|---|---|
| North Central Valley Wildlife Management Area | 2,748.83 acres |

(530) 934-2801
(530) 934-7814

C/o Sacramento Nwr Complex
752 County Road 99w
Willows, CA 95988-9639

https://www.fws.gov/refuges/profiles/index.cfm?id=81628

| | |
|---|---|
| Sacramento River National Wildlife Refuge | 12,191.16 acres |

(530) 934-2801
(530) 934-7814

MAILING ADDRESS
C/o Sacramento Nwr Complex
752 County Road 99w
Willows, CA 95988-9639

PHYSICAL ADDRESS
8369 Hugh Baber Lane
Chico, CA 95928

https://www.fws.gov/refuges/profiles/index.cfm?id=81627

| | |
|---|---|
| Sonny Bono Salton Sea National Wildlife Refuge | 9.63 acres |

(760) 348-5278
(760) 348-7245

906 West Sinclair Road
Calipatria, CA 92233-9744

https://www.fws.gov/refuges/profiles/index.cfm?id=81631



## Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

# Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1A
- PEM1C
- PEM1Ei
- PEM1F
- PEM1J
- PEM1Kx
- PEM1Cx
- PEM1K

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1A
- PSS1A
- PFOA
- PSS1C

FRESHWATER POND

- PUBHx
- PABF
- PUBKx
- PUBH
- PUBF
- PAB3Fx
- PAB4F
- PUBK
- PAB3Kx
- PUBFx

LAKE

- L2UBH
- L2UBF

RIVERINE

- R2UBH
- R2UBHx
- R2USC
- R4SBC
- R2AB3Hx
- R2AB4H

- R4SBCx
- R2USA
- R2AB3H
- R2ABF
- R2AB4Hx
- R2AB4F
- R2AB3Fx
- R2ABH
- R4SBA

A full description for each wetland code can be found at the National Wetlands Inventory website

**Data limitations**

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

**Data exclusions**

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

**Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

# C-3: California Native Plant Society Inventory of Rare and Endangered Plants

CNPS California Native Plant Society

# Plant List

## Inventory of Rare and Endangered Plants

**3** matches found. *Click on scientific name for details*

**Search Criteria**

Found in Quad 3912148

Modify Search Criteria Export to Excel Modify Columns Modify Sort Display Photos

| Scientific Name | Common Name | Family | Lifeform | Blooming Period | CA Rare Plant Rank | State Rank | Global Rank |
|---|---|---|---|---|---|---|---|
| Astragalus tener var. ferrisiae | Ferris' milk-vetch | Fabaceae | annual herb | Apr-May | 1B.1 | S1 | G2T1 |
| Centromadia parryi ssp. rudis | Parry's rough tarplant | Asteraceae | annual herb | May-Oct | 4.2 | S3 | G3T3 |
| Hibiscus lasiocarpos var. occidentalis | woolly rose-mallow | Malvaceae | perennial rhizomatous herb (emergent) | Jun-Sep | 1B.2 | S3 | G5T3 |

**Suggested Citation**

California Native Plant Society, Rare Plant Program. 2018. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 15 October 2018].

**Search the Inventory**

Simple Search

Advanced Search

Glossary

**Information**

About the Inventory

About the Rare Plant Program

CNPS Home Page

About CNPS

Join CNPS

**Contributors**

The Calflora Database

The California Lichen Society

California Natural Diversity Database

The Jepson Flora Project

The Consortium of California Herbaria

CalPhotos

**Questions and Comments**

rareplants@cnps.org

CNPS California Native Plant Society

# Plant List

## Inventory of Rare and Endangered Plants

**7** matches found. *Click on scientific name for details*

**Search Criteria**

Found in Quad 3912158

Modify Search Criteria Export to Excel Modify Columns Modify Sort Display Photos

| Scientific Name | Common Name | Family | Lifeform | Blooming Period | CA Rare Plant Rank | State Rank | Global Rank |
|---|---|---|---|---|---|---|---|
| Astragalus tener var. ferrisiae | Ferris' milk-vetch | Fabaceae | annual herb | Apr-May | 1B.1 | S1 | G2T1 |
| Azolla microphylla | Mexican mosquito fern | Azollaceae | annual / perennial herb | Aug | 4.2 | S4 | G5 |
| Brasenia schreberi | watershield | Cabombaceae | perennial rhizomatous herb (aquatic) | Jun-Sep | 2B.3 | S3 | G5 |
| Centromadia parryi ssp. rudis | Parry's rough tarplant | Asteraceae | annual herb | May-Oct | 4.2 | S3 | G3T3 |
| Hibiscus lasiocarpos var. occidentalis | woolly rose-mallow | Malvaceae | perennial rhizomatous herb (emergent) | Jun-Sep | 1B.2 | S3 | G5T3 |
| Tuctoria greenei | Greene's tuctoria | Poaceae | annual herb | May-Jul (Sep) | 1B.1 | S1 | G1 |
| Wolffia brasiliensis | Brazilian watermeal | Araceae | perennial herb (aquatic) | Apr,Dec | 2B.3 | S1 | G5 |

**Suggested Citation**

California Native Plant Society, Rare Plant Program. 2018. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 15 October 2018].

**Search the Inventory**

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Advanced Search
Glossary

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The Consortium of California Herbaria
CalPhotos

**Questions and Comments**

rareplants@cnps.org

CNPS California Native Plant Society

## Plant List

### Inventory of Rare and Endangered Plants

**12** matches found. *Click on scientific name for details*

**Search Criteria**

Found in Quad 3912178

Modify Search Criteria Export to Excel Modify Columns Modify Sort Display Photos

| Scientific Name | Common Name | Family | Lifeform | Blooming Period | CA Rare Plant Rank | State Rank | Global Rank |
|---|---|---|---|---|---|---|---|
| Astragalus pauperculus | depauperate milk-vetch | Fabaceae | annual herb | Mar-Jun | 4.3 | S4 | G4 |
| Astragalus tener var. ferrisiae | Ferris' milk-vetch | Fabaceae | annual herb | Apr-May | 1B.1 | S1 | G2T1 |
| Castilleja rubicundula var. rubicundula | pink creamsacs | Orobanchaceae | annual herb (hemiparasitic) | Apr-Jun | 1B.2 | S2 | G5T2 |
| Erythranthe glaucescens | shield-bracted monkeyflower | Phrymaceae | annual herb | Feb-Aug (Sep) | 4.3 | S3S4 | G3G4 |
| Euphorbia hooveri | Hoover's spurge | Euphorbiaceae | annual herb | Jul-Sep (Oct) | 1B.2 | S1 | G1 |
| Fritillaria pluriflora | adobe-lily | Liliaceae | perennial bulbiferous herb | Feb-Apr | 1B.2 | S2S3 | G2G3 |
| Hesperevax caulescens | hogwallow starfish | Asteraceae | annual herb | Mar-Jun | 4.2 | S3 | G3 |
| Limnanthes floccosa ssp. californica | Butte County meadowfoam | Limnanthaceae | annual herb | Mar-May | 1B.1 | S1 | G4T1 |
| Limnanthes floccosa ssp. floccosa | woolly meadowfoam | Limnanthaceae | annual herb | Mar-May (Jun) | 4.2 | S3 | G4T4 |
| Navarretia heterandra | Tehama navarretia | Polemoniaceae | annual herb | Apr-Jun | 4.3 | S4 | G4 |
| Navarretia nigelliformis ssp. nigelliformis | adobe navarretia | Polemoniaceae | annual herb | Apr-Jun | 4.2 | S3 | G4T3 |
| Tuctoria greenei | Greene's tuctoria | Poaceae | annual herb | May-Jul (Sep) | 1B.1 | S1 | G1 |

**Suggested Citation**

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# Plant List

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| Scientific Name | Common Name | Family | Lifeform | Blooming Period | CA Rare Plant Rank | State Rank | Global Rank |
|---|---|---|---|---|---|---|---|
| Cryptantha crinita | silky cryptantha | Boraginaceae | annual herb | Apr-May | 1B.2 | S2 | G2 |
| Hibiscus lasiocarpos var. occidentalis | woolly rose-mallow | Malvaceae | perennial rhizomatous herb (emergent) | Jun-Sep | 1B.2 | S3 | G5T3 |
| Wolffia brasiliensis | Brazilian watermeal | Araceae | perennial herb (aquatic) | Apr,Dec | 2B.3 | S1 | G5 |

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