SAN MATEO RESOURCE CONSERVATION DISTRICT

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HALF MOON BAY, CA 94019

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REQUEST FOR BIDS

BUTANO FARMS SAN FRANCISCO GARTER SNAKE HABITAT ENHANCEMENT PROJECT

Sponsored by the
SAN MATEO RESOURCE CONSERVATION DISTRICT

Distributed
March 23, 2020

REQUEST FOR BIDS

BUTANO FARMS SAN FRANCISCO GARTER SNAKE
HABITAT ENHANCEMENT PROJECT

Index

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Bid Completion Checklist

BUTANO FARMS SAN FRANCISCO GARTER SNAKE
HABITAT ENHANCEMENT PROJECT

For bids to be considered complete, prospective contractors must include:

- ☐ Signed and completed copy of all sections of Exhibit B
  - ☐ Bid Schedule
  - ☐ Subcontractors
  - ☐ References

All other attached documents are included for informational purposes only and are not required to be completed at the time of submission.

REQUEST FOR BIDS

BUTANO FARMS SAN FRANCISCO GARTER SNAKE
HABITAT ENHANCEMENT PROJECT

1. Introduction

The Butano Farms San Francisco Garter Snake Habitat Enhancement Project (project) will enhance habitat for San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) and California red-legged frog (*Rana draytonii*). The Butano Farms Project Area consists of 65 acres (Project Area) in San Mateo County, CA owned and managed by the Peninsula Open Space Trust (POST). Project activities include modifying an existing 1-acre pond and 14.5 acres of surrounding upland vegetation to enhance aquatic and upland habitat for San Francisco garter snake (SFGS) and California red-legged frog (CRLF).

The project provides mitigation for biological impacts associated with Pacific Gas & Electric Company (PG&E) Line 101 Inline Inspection and Upgrade, and Lomita Park Station Rebuild Project in the City of Millbrae, San Mateo County. PG&E provided financial contribution to RCD for management of land with emphasis on management for San Francisco garter snake. Restoration activities are consistent with the recovery actions outlined in the San Francisco Garter Snake Recovery Plan, which concludes that restoration of upland, riparian and aquatic habitat is necessary for the recovery of the SFGS and will support recovery of the CRLF (USFWS 1985; USFWS 2006a).

The RCD seeks qualified contractors (Contractor) to implement project actions detailed in the Project Description, Plans, and Specifications (Exhibit A). Aquatic activities are currently at 65% design and no significant changes are anticipated; the selected contractor would be involved with design review, construction feasibility, and value engineering with the RCD and engineer.

Contracting Entity: The RCD is the contracting entity and project manager on behalf of the landowner, POST. The RCD is a non-regulatory public benefit district to help people protect, conserve, and restore natural resources through information, education, and technical assistance programs. The RCD is a division of state government under Division 9 of the Public Resources Code.

2. Location

The Butano Farms Habitat Enhancement Project (project) is within Butano Farms, part of the Cloverdale Ranch complex, owned by POST within San Mateo County, California just south of the town of Pescadero. The project spans 65-acres encompassing three ridges, riparian habitat and aquatic habitat. The project site is adjacent to Butano Creek, and a previous project in 2017 for flood plain reconnection. See Figure 1 Project Location and Vicinity.

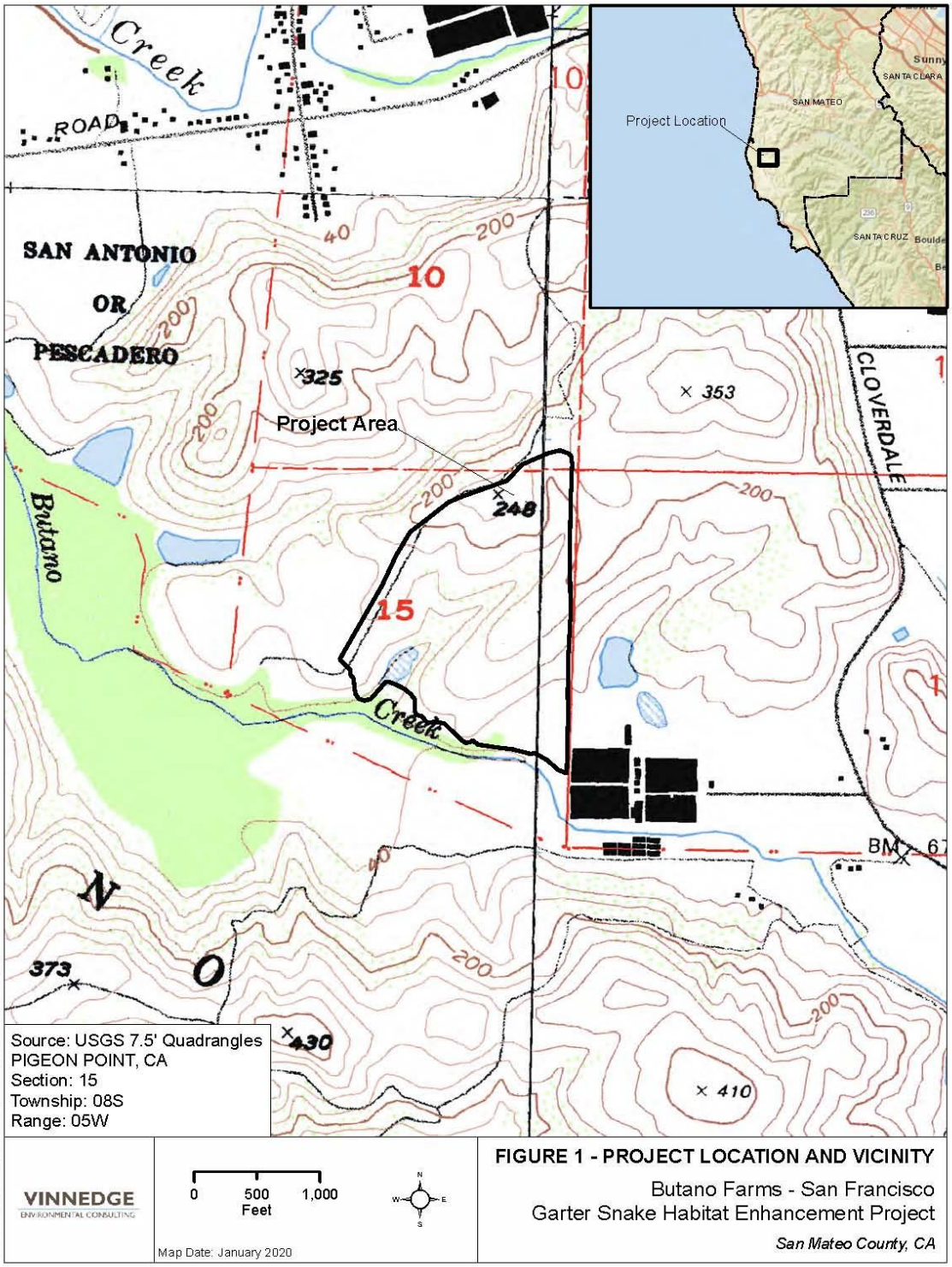


FIGURE 1 - PROJECT LOCATION AND VICINITY

Butano Farms - San Francisco
Garter Snake Habitat Enhancement Project

San Mateo County, CA

3. Plans and Work Sites

The submission of a bid shall constitute certification by the bidder that they have:

A. Visited the project site to familiarize themselves with local conditions that in any manner affect cost, progress, or performance of the work;
B. Familiarized themselves with all federal, state and local laws, ordinances, rules, and regulations that in any manner affect the cost, progress, or performance of the work;
C. Thoroughly examined and understand the bid documents, exhibits, plans, specifications, and reports

4. Scope of Work

Bids shall include costs for furnishing all labor, equipment, and materials necessary to perform all work as described in Exhibit A.

Labor and equipment: Bids shall include costs for furnishing necessary labor and equipment to carry out all tasks detailed in Exhibit A.

- Subcontracts are allowable for specialized work. Subcontractors are subject to approval by the RCD and should be identified on the Cost Proposal form.
- Labor costs (including subcontractor labor costs) shall be based on current prevailing wage rates (see section entitled "Wages" below).
- Equipment costs shall include all fuel costs. Added fuel surcharges not included in the bid will not be paid.

Materials: All required materials and any associated delivery costs shall be included in the bid.

5. Project Cost and Funding

Funding for the project is through grants from PG&E Corporation.

The cost estimate for the project is $560,000.00.

6. Documentation

Attached to this request for bids are copies of project and contract documents, including the following:

EXHIBIT A: Project Description, Plans, and Specifications
EXHIBIT B: Cost Proposal
EXHIBIT C: Sample Contract
EXHIBIT D: San Mateo RCD Insurance Requirements
EXHIBIT E: Labor Compliance Program
EXHIBIT F: Certificate of Compliance
EXHIBIT G: Billing Instructions for Contractors
EXHIBIT H: Project Biological Opinion
EXHIBIT I: 65% Designs (Aquatic)
EXHIBIT J: Mitigation, Monitoring, and Reporting Program (Draft)

Additional project specifications and information may be provided at the bid tour and/or through formal addenda to the bid documents. Bidders are expected to thoroughly examine and understand the contents of each of these documents, which contain pertinent and specific information regarding all aspects of project construction and administration.

7. Proposal and Work Schedule

Date of announcement	3/23/2020
RSVP Bid Tour	4/16/2020 (via amy@sanmateorcd.org)
Bid Tour (mandatory)	4/17/2020 at 1:00 pm Bid tour date assumes Federal/State/local orders regarding COVID-19 allow for onsite meeting. Date or format could change. Please be sure to RSVP to get updates.
Questions/Inquiries Accepted	4/17/20 – 5/5/2020
Deadline for proposal submissions	5/6/2019 at 5:00 pm Postmarked, Late proposal submissions will not be considered. Bids may be submitted digitally to amy@sanmateorcd.org or by hard copy to: San Mateo RCD Attn: Amy Kaeser 80 Stone Pine Road, Suite 100 Half Moon Bay, CA 94019
Anticipated Notification of Award	5/22/2020
Anticipated Contract Date	6/10/2020
Work Commence Date with the following conditions: -Permitting is complete -All work is dependent on favorable weather conditions -Contractor shall coordinate commencement with RCD -No work shall begin until authorized by RCD	6/15/2020 Work Commence Date assumes Federal/State/ local orders regarding COVID-19 allow for work to commence.
Work Completion Date	10/31/2020

8. Prevailing Wage Laws

This project is considered a public work or public improvement and is therefore subject to Prevailing Wage pursuant to Part 7 of Division 2 of the California Labor Code (commencing with Section 1720.)

9. Registration Pursuant to Labor Code Section 1725.5

All contractors and subcontractors who will perform any portion of the work must be currently registered and qualified to perform public work pursuant to Labor Code Section 1725.5. Bids submitted by contractors, or including subcontractors, who are not registered will be rejected.

10. Permits

Contractor will be responsible for obtaining and compliance with SWPPP. Copies of all permits will be provided to the Contractor, and one copy of each permit must be kept at the job site at all times.

11. Inspections

All work performed on this project shall be subject to regular inspections. The Contractor shall not cover up any work prior to these inspections. It is the Contractor's responsibility to contact the Project Manager to conduct required inspections. Inspections shall occur during construction and at job completion.

12. Sensitive Areas

The project site is an environmentally sensitive area. Contractor shall take all precautions and measures necessary to protect the environmental integrity of the site, including but not limited to the protection of all plants, animals, and aquatic life. See Exhibit H: Biological Opinion

13. Licenses

To submit a bid on this contract, a valid Contractor's License issued by the Contractor's State License Board is required.

14. Safety Plan

A written safety plan shall be submitted to RCD by the successful bidder prior to the start of construction activities.

15. Evaluation of Bids

The RCD will accept the proposal which is of the greatest advantage to the project and the RCD. RCD has the right to reject any and all proposals and add alternates. **RCD is not required to accept the low bid.**

16. Contract and Payment

A lump sum contract will be awarded to the successful bidder for all work described in Exhibit A and the Scope of Work. Submission of invoice for lump sum payment to the Contractor may be made following completion of work and final inspection, or progress invoices may be submitted for payment in accordance with the provisions described in the attached sample contract (Exhibit C). Payment policy and instructions for vendors are attached hereto as Exhibit G.

EXHIBIT A
Project Description, Plans, and Specifications
BUTANO FARMS SAN FRANCISCO GARTER SNAKE
HABITAT ENHANCEMENT PROJECT

Summary

The Butano Farms San Francisco Garter Snake Habitat Enhancement Project (project) will enhance habitat for San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) and California red-legged frog (*Rana draytonii*). The Butano Farms Project Area consists of 65 acres (Project Area) in San Mateo County, CA owned and managed by the Peninsula Open Space Trust (POST). Project activities include vegetation management targeted across upland habitat and modification to an existing 1-acre pond in the aquatic habitat. The area directly impacted by restoration and enhancement activities (Project Site) consists of 16.57 acres.

The project provides mitigation for biological impacts associated with Pacific Gas & Electric Company (PG&E) Line 101 Inline Inspection and Upgrade, and Lomita Park Station Rebuild Project in the City of Millbrae, San Mateo County. PG&E provided financial contribution to the RCD for management of land with emphasis on management for San Francisco garter snake (SFGS). Restoration activities are consistent with the recovery actions outlined in the San Francisco Garter Snake Recovery Plan, which concludes that restoration of upland, riparian and aquatic habitat is necessary for the recovery of SFGS, and will support recovery of the California red-legged frog (CRLF) (USFWS 1985; USFWS 2006a).

The goal of the project is to improve habitat conditions for SFGS. In their 5-year review of SFGS, USFWS identified reduction of habitat quality through woody encroachment and lack of disturbance as one of the "greatest threats" to SFGS and states that "uplands may be essential to the snake's survival" (USFWS 2006b). USFWS also highlights seral conditions in freshwater marshes and reduction in open water habitat as another threat to SFGS habitat. According to USFWS, the ideal percent cover of brush in uplands utilized by SFGS should be between at 10 to 30% cover (1 shrub per 20-30 square meters) (USFWS 2006b). Finally, USFWS recommends livestock grazing to maintain grassland and prevent conversion to shrubland. In light of these recommendations, the project includes the following suite of actions aimed at enhancing both aquatic and upland habitat:

- Excavate existing pond to increase the depth and area of open water;
- Create a sediment retention forebay upstream of the existing pond to reduce erosion in the adjacent drainages as well as sediment transport into the pond;
- Restore grassland habitat within the pond's watershed by modifying the grazing regime to enhance the grassland components and reduce woody vegetation, removing woody vegetation that is encroaching into the grassland, controlling invasive plants through various treatment approaches, increasing soil health through application of soil amendments, and seeding with native grasses; and
- Minimize bank erosion along the pond edges through creation of designated areas for controlled cattle access the pond (drinking water source), and/or development of alternative water systems to reduce erosion and improve distribution of cattle across the landscape.

Implementation of these actions will restore grassland and herbaceous wetland habitats within the Project Area that support movement, foraging, and breeding habitat used by SFGS, CRLF and a variety of other native wetland and grassland dependent species.

Ecological Goal and Objectives

The goal of the project is to improve habitat conditions for SFGS by meeting the following objectives. These objectives are described in more detail below.

1. Create and maintain shallow "bench" habitat around the northern and western sides of the pond margin with open emergent or submergent vegetation that allows sunlight to penetrate and warm the water to increase successful metamorphosis of California red-legged frog and chorus frog tadpoles.
2. Maintain at least 25% cover of open water habitat in the pond through a combination of deepening and extending the existing pond footprint to provide deep water refuge for various prey species of the San Francisco garter snake, including California red-legged frog.
3. Maintain a 25-50% cover of emergent vegetation around pond margins for frog breeding and snake cover.
4. Protect pond water quality and longevity (sediment, nutrients and pathogens) to the greatest extent practicable.
5. Control and eradicate invasive species.
6. Reduce woody encroachment into grassland in the surrounding upland areas.

1. Create and Protect Shallow Open Bench Habitat

The project includes creation of shallow bench habitat, which is a key habitat component for both CRLF and Sierra treefrog (*Pseudacris sierra*) tadpole and juvenile rearing and for SFGS basking and foraging. The bench habitat will also provide pond access and egress locations for target species and other native wildlife.

Shallow bench habitat is defined as submerged habitat, typically around a pond margin, with a low gradient (<10:1 slope) and a ponding depth of 10-20 inches. Bench width may vary from 2 to 10 feet or more. In natural ponds, or ponds within drainage networks, this habitat is a common feature at the pond inlet which is often created by alluvial deposits. This habitat is generally devoid of dense, tall stands of emergent vegetation and therefore maintains a warm and shallow aquatic environment but does have a cover of low emergent marsh or submergent marsh plants with intermittent unvegetated open water patches.

In areas where bench habitat already exists, the project has been designed to maintain water levels to provide appropriate ponding depth during the period of tadpole and juvenile development (March-August), and facilitate water drawdown later in the season (September-December) to prevent encroachment of tall emergent vegetation into the bench habitat.

2. Maintain at least 25% Open Water Habitat

Open water is important as escape habitat for CRLF and foraging habitat for SFGS. The existing open water habitat within the 1-acre pond currently provides low quality foraging habitat for SFGS because of siltation, vegetation encroachment, and detrital build-up. Research has shown that emergent vegetation generally won't establish on areas that are more than 3 feet deep. Therefore, the project will excavate the pond to a depth of between 3 to 7 feet, to slow growth

of emergent vegetation and maintain ideal water temperature for species (USFWS 2002). In addition, construction of a system of sediment catchment basins will control pond sedimentation through capture of large sediment size particles (i.e. sand) before they reach the pond.

3. Maintain 25-50% Cover of Emergent Vegetation

Emergent vegetation such as tules, cattails, bur-reed, or spikerush are essential habitat components for CRLF and Sierra tree frogs, as these species attach egg masses to emergent vegetation. In addition, emergent vegetation also supports growth of periphyton (algae and heterotrophic microbes) that forms the foundation of the aquatic food web and provides multiple food sources for tadpoles, juveniles, and adults. Dense stands of emergent vegetation can also be used for both foraging and cover by SFGS.

Although emergent vegetation is an important habitat component for target species, too much emergent vegetation can become problematic. Lack of management can lead to the development of nearly impenetrable stands of tules, cattails, and bur-reed around the pond margin and accelerated filling in of the pond by accumulated detritus. Dense emergent vegetation can also encroach on other important pond habitat components such as shallow bench habitat and open water habitat and can ring the entire pond, making access and egress for target species as well as other native amphibians and reptiles difficult. Finally, high levels of emergent vegetation can lead to high levels of detritus, in turn leading to reduced levels of dissolved oxygen. It is generally agreed that allowing cattle unrestricted access to ponds can result in degraded aquatic and wetland habitat for CRLF and SFGS due to excess vegetation removal and trampling. Therefore, management of emergent vegetation must take into account issues of both too much and too little emergent vegetation. The management objective for emergent vegetation cover is 25% to 50% of the entire pond area.

4. Protect Pond Water Quality

The project addresses water quality concerns to manage and maintain a healthy pond ecosystem. These concerns include sediment loading, nutrient loading, and the introduction of pathogens. Sediment and nutrient loading accelerates loss of water depth and allows for encroachment of emergent vegetation into open water which in turn, can lead to “choking” of the pond and decreased availability of dissolved oxygen. These conditions lead to amphibian egg and tadpole mortality through asphyxiation and can also disrupt CRLF and SFGS adult foraging. These water quality concerns will be managed through construction of a series of earthen berms at the head of the pond complex to catch sediment prior to entering the pond. Soil erosion treatments, including mulching areas of bare soil and gullies, will also be carried out in upland areas within the pond’s drainage to reduce sediment reaching the pond.

5. Control and/or Eradicate Invasive Species

Within the Project Area, invasive Jubata grass (*Cortaderia jubata*) is the only weedy plant that currently appears to be causing significant negative impacts in the vicinity of the pond. Jubata grass is considered an A-1 (highest priority) wildland weed. It is an aggressive colonizer that it known to displace native species occurring in coastal scrub, coastal dunes, and other coastal habitats. Jubata grass typically invades eroded or disturbed soils. This invasive weed will be eradicated through manual, mechanical, and/or chemical techniques.

6. Reduce Upland Woody Encroachment into Grassland

San Francisco garter snake and California red-legged frog require a matrix of habitat types. While shrubs and larger vegetation are vital for refugia, high densities of shrub habitat prevent movement, dispersion, fossorial mammal activity, and thermoregulation. The ideal composition of shrubs within upland habitat for San Francisco garter snake is 10 – 30% or 1 shrub per 20-30 square meters (USFWS 2006b). Shrub control will take place in selected areas to maintain ideal shrub cover. Shrub control can take the form of any mix of mowing, manual removal, chemical control, and grazing.

While native to the area, Monterey pine (*Pinus radiata*) and Douglas fir (*Pseudotsuga menziesii*) would not historically inhabit the grasslands and ridges within the Project Area. These species do not provide ideal habitat for SFGS or their prey (CRLF). 25 of these two species of trees, with individuals up to up to 34-inch diameter at breast height, will be removed. The resulting wood chip byproduct from woody vegetation control/removal will be used for soil amendments and erosion control within the project.

Restoration Activities

Project activities consist of both upland habitat enhancement and aquatic habitat restoration activities. Specific tasks associated with each of the project elements are detailed in Table 1 and depicted in Figures 2 through 5 and Exhibit I. All project activities will be consistent with the Biological Opinion (Exhibit H), Mitigation, Monitoring, and Reporting Program (Exhibit J), and all other permit measures.

Table 1 . Project Design Elements

Project Elements	Description of Activity	Approximate Acreage	Temporary or Permanent Impact
Pre-Project Activities & Site Preparation	Construct a temporary access road and staging area	0.24	Temporary
	Install temporary fencing around sensitive resource areas and install a turbidity curtain between the working area and the rest of the existing pond	NA	Temporary
Upland Habitat Enhancement Activities	Reduce woody encroachment of trees into grassland by cutting or girdling	2.6 acres	Permanent
	Reduce shrub cover to target 10-30% by manual, mechanical, chemical, and/or grazing techniques	7.7 acres	Permanent
	Reduce invasive weeds by manual, mechanical, chemical, and/or grazing techniques	1.8 acres	Permanent
	Spread mulch from woody brush and tree control over areas of potential erosion, at 4-18” thick	2.4 acres	Temporary
Aquatic Habitat Restoration Activities	Excavate two shallow ponds	0.08 acre and 0.11 acre	Permanent
	Excavate a deep water pond	0.31 acre	Permanent
	Create a wetland bench on the north side of the deep water pond	0.18 acre	Permanent
	Place fill to create a bench on the west side of the two new shallow ponds	0.52 acre	Permanent
	Construct sediment retention berms to the north and between the two shallow ponds	0.13 acres	Permanent
	Convert willow-dominated area to native grassland dominated area by use of manual, mechanical, and grazing methods	0.5 acre	Permanent

Aquatic Habitat Restoration Activities

Aquatic habitat will be expanded, enhanced and protected. The activities are listed in Table 1 and below; see Exhibit I for the 65% designs of the aquatic restoration activities.

- ***Aquatic Habitat Expansion (0.19 acres):*** Two new shallow ponds will be excavated along the northwest section of the existing pond. These new ponds will be seasonal and have depths of 10”-20” to provide shallow water habitat for CRLF and Sierra tree frogs, both food sources of SFGS.

- ***Aquatic Habitat Enhancement (0.49 acres):*** This component of the project will remove riparian tree species (mostly willows), and sediment to achieve a water depth of 10”-20” in the wetland bench (0.18 acres), and also excavate the deep water pond to a depth of 3-7’ (0.31 acres).

- ***Aquatic Habitat Protection (0.50 acres):*** The remaining 0.5 acre of existing pond habitat will remain unaltered. The current conditions at this location contain a dense mix of tules and cattails, which help filter sediment from the drainage before entering Butano Creek.

Berms will be constructed from material removed from the pond and placed in the willowed area to the northeast of the pond. These constructed berms will function to slow the flow of water moving through the floodplain and allow sediment to fall out prior to the water reaching the pond. The berms will ultimately build up the elevation of the inlet channel, provide natural grade control to avoid headcutting and minimize future erosion in the gullies. Excavated material from the pond will also be used to build a 0.52-acre bench on the west side of the pond. All excavated material will remain onsite (no off haul from the site).

Upland Habitat Restoration Activities

The project will result in approximately 61 acres of enhanced upland habitat for SFGS with approximately 14.5 acres of direct impact. Activities are detailed below.

- **Reduce encroachment of trees into grassland (2.6 acres)**: There are approximately 25 Douglas fir and Monterey pine trees of varying sizes that are encroaching onto the grassland and coastal shrubland habitat. These two species should be removed in selected areas (Figure 4, blue) and any seedlings found should be pulled. Smaller diameter trees and branches removed should be chipped on site and will be utilized as mulch for soil enhancements (see below). Larger diameter trees may be girdled to provide standing snag habitat for wildlife. Size requirements for “small” or “large” diameter trees will determined by project manager and selected contractor. It is estimated that 20 trees will be cut and 5 trees will be girdled. All actions should limit ground disturbance to the maximum extent feasible and soil protective measures should be considered.

- **Reduce shrub encroachment into grassland (7.7 acres)**: Manual, mechanical, and chemical techniques may be used to control the cover of shrubs within the shrub control areas (Figure 4, orange). A combination of low-impact cutting (hand or small chainsaw) and cut-stump treatment is preferred to reduce ground disturbance. Species for control consist primarily of coyote brush (*Baccharis pillularis*), but also include coastal shrub species such as poison oak (*Toxicodendron diversilobum*) and California blackberry (*Rubus ursinus*).

  Shrub control will only be conducted within shrub control areas to preserve the matrix of habitats and increase concentration on critical areas for grassland enhancement and to reduce woody encroachment. Before shrub control activities, biologists (RCD) will determine and flag habitat ‘islands’ where shrubs will be conserved within the control areas in order to meet the 10-30% cover objectives. These islands will differ in size and

shape to increase the diversity of refugia that may be needed by San Francisco garter snake and California red-legged frog.

Material resulting from this activity should be chipped along with the tree material and utilized as soil enhancements. Some material may be left in habitat piles onsite.

- **Reduce invasive weeds (1.8 acres)**: Mechanical, manual, and chemical control may be used to control jubata grass in selected areas (Figure 4, yellow). Jubata grass can act as refugia for San Francisco garter snake. When implementing control, efforts should be made to maintain the vegetative function of jubata grass (i.e. chemical control where feasible). Chemical control is recommended for dense, monoculture stands of weeds, to prevent erosion from manual or mechanical removal. Manual removal can be done for retreatment efforts or small, individual plants when erosion is not an issue, or where herbicides cannot be utilized. No herbicide use is allowed within 60 feet of the pond. See Biological Opinion (Exhibit H, pages 27-28) for permitted herbicides, concentrations, and BMPs.
- **Reduce erosion and enhance soil (2.4 acres)**: For selected areas (Figure 4, green), mulch should be applied in a thick layer (4-18”). The thickness of the mulch will depend on the availability of mulch from woody brush and tree control, slope, and site needs. Areas of high weed or high erosion potential will be mulched at greater thickness.

Construction

Construction of the project may occur between June 15 and October 31 and aquatic and upland activities may occur concurrently or separately. However, due to restrictions on certain activities (see below) and preference to reduce the overall duration of construction activities, it is expected that construction will occur between approximately August 1 and October 31. Contractor will coordinate schedule with the RCD.

- Aquatic restoration activities are estimated to take approximately 8-10-weeks. Work within the pond is restricted to the time after CRLF tadpoles are likely to have metamorphosized and before CRLF breeding season and seasonal rains begin (i.e. August 15 – October 31).
- Upland restoration activities are estimated to take approximately 3-8 weeks. Use of herbicide is restricted to August 15 – October 31. Vegetation removal taking place prior to September 1 will require a bird survey (survey to be completed by the RCD if required).

Heavy equipment, including scrapers, excavator, backhoes, and haul trucks would be used to construct the aquatic habitat portion of the proposed project. Upland habitat construction activities would require chainsaws, chippers, masticator and smaller mechanical and manual equipment. Low ground pressure equipment would be used to transport exported material across the Project Area and wetland mats would be used to minimize soil compaction in work areas. Equipment and vehicles would be staged along existing access roads or dedicated staging areas. All equipment would be cleaned prior to arrival on-site to reduce the chances of non-native seeds or species being introduced by construction equipment.

All best management practices, avoidance and minimization measures, and permit requirements must be observed. See Exhibit H for the Biological Opinion for the project (see pages 18-28 for measures specific to this project) and Exhibit J for the Mitigation, Monitoring, and Reporting Program.

Access and Staging

The project area is accessed via a gated dirt road off Pescadero Creek Road, just east of the center of the town of Pescadero. Contractors will be provided gate access. The project area is approximately a mile and a half south on the dirt road. The northwest and northeast sides of the project area are edged by two dirt roads that are accessible to large equipment. The staging area is indicated in Figure 2, on the west side of the project area just off the dirt access road. Roads may not be accessible when wet.

Figure 2. Project Area

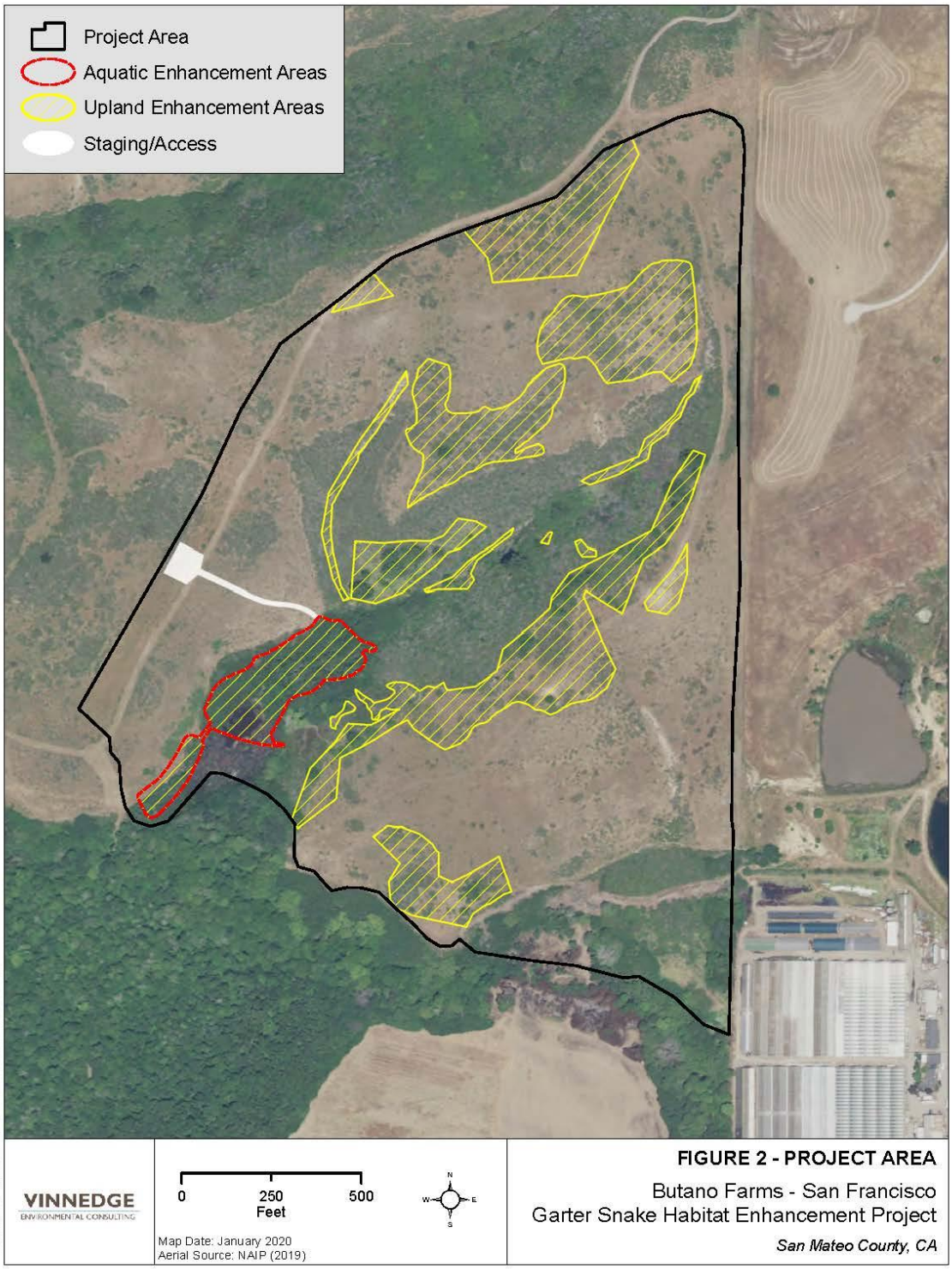


Figure 3. Existing Habitat

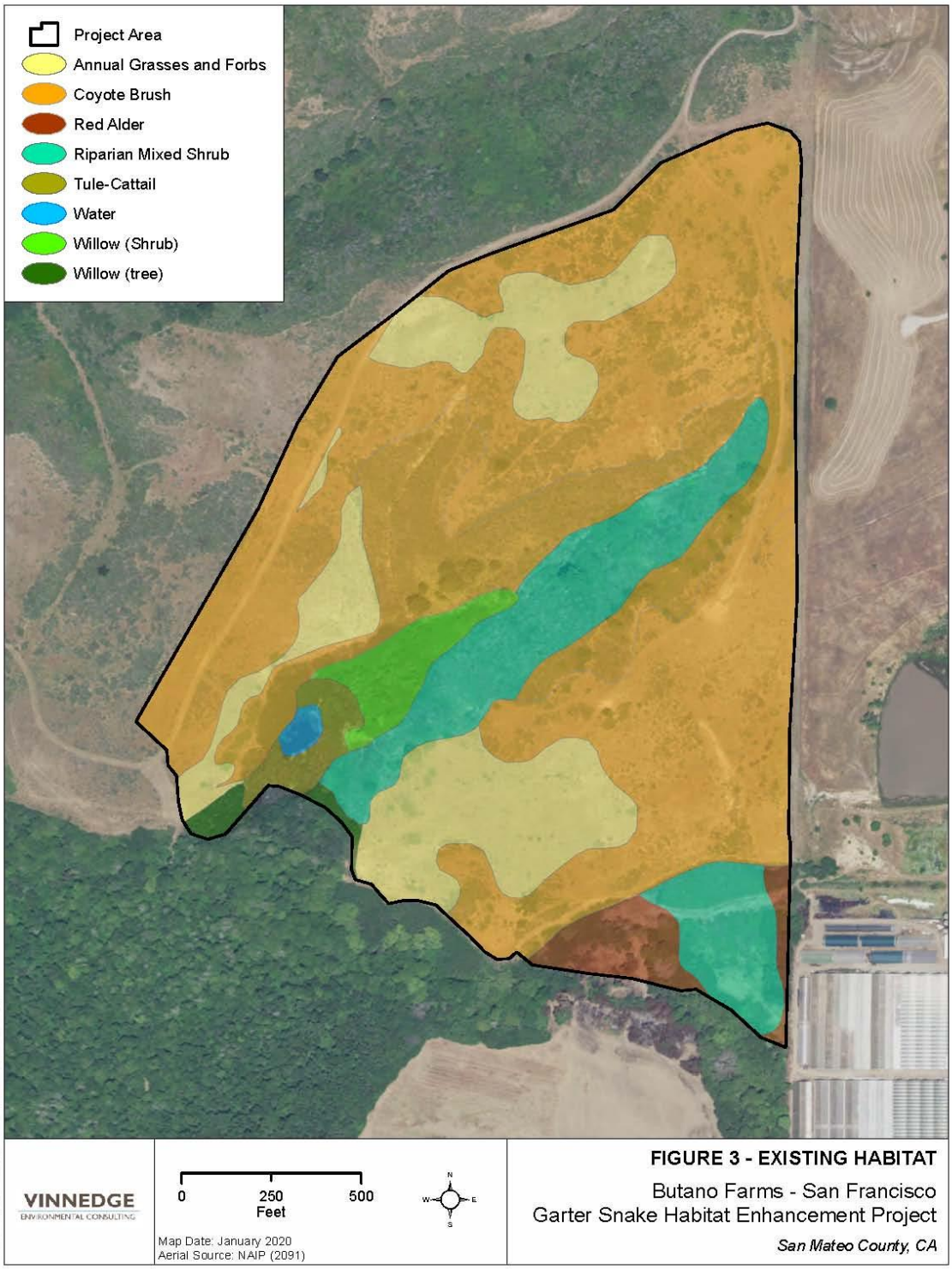


Figure 4. Upland Habitat Enhancement

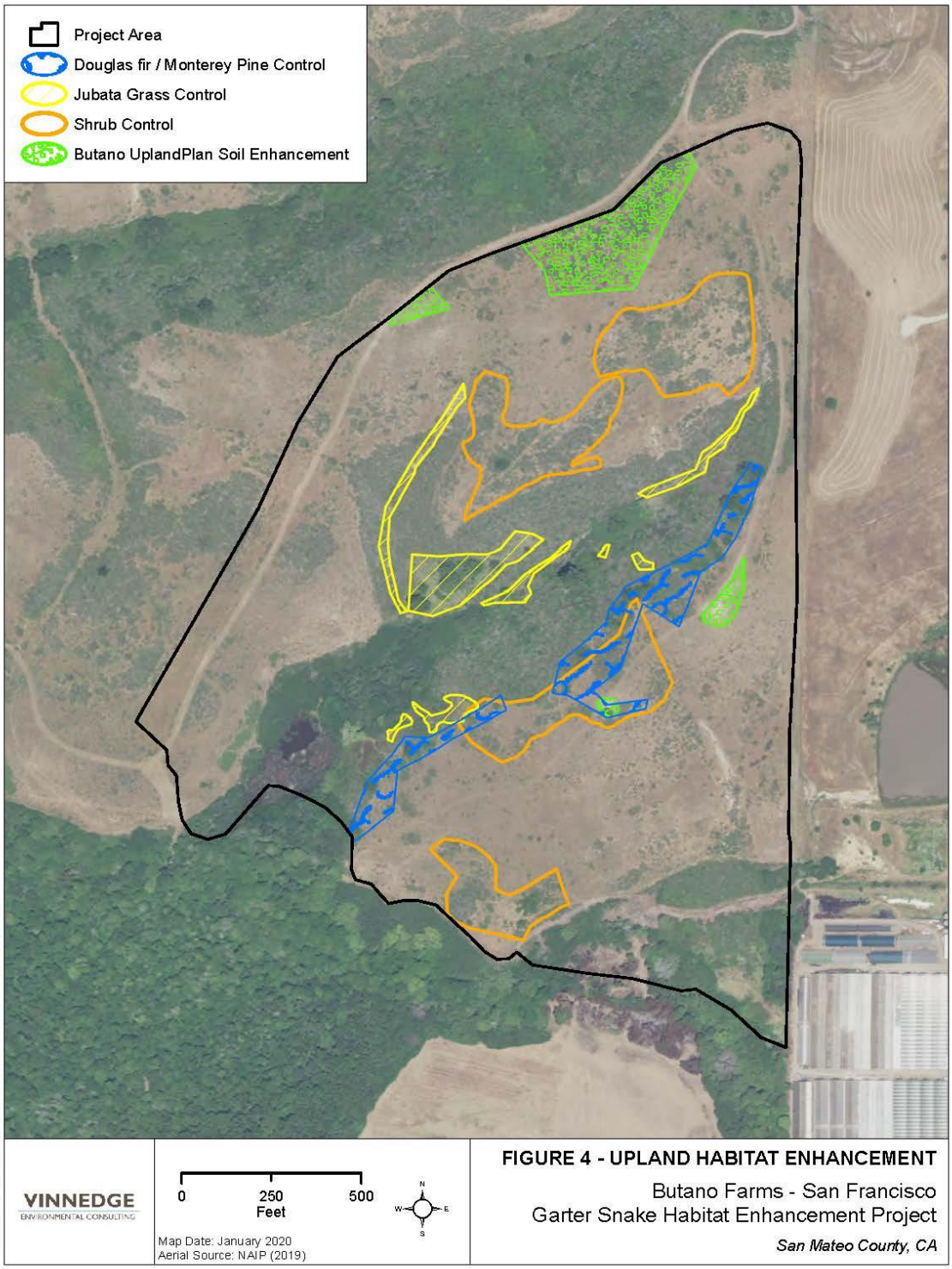
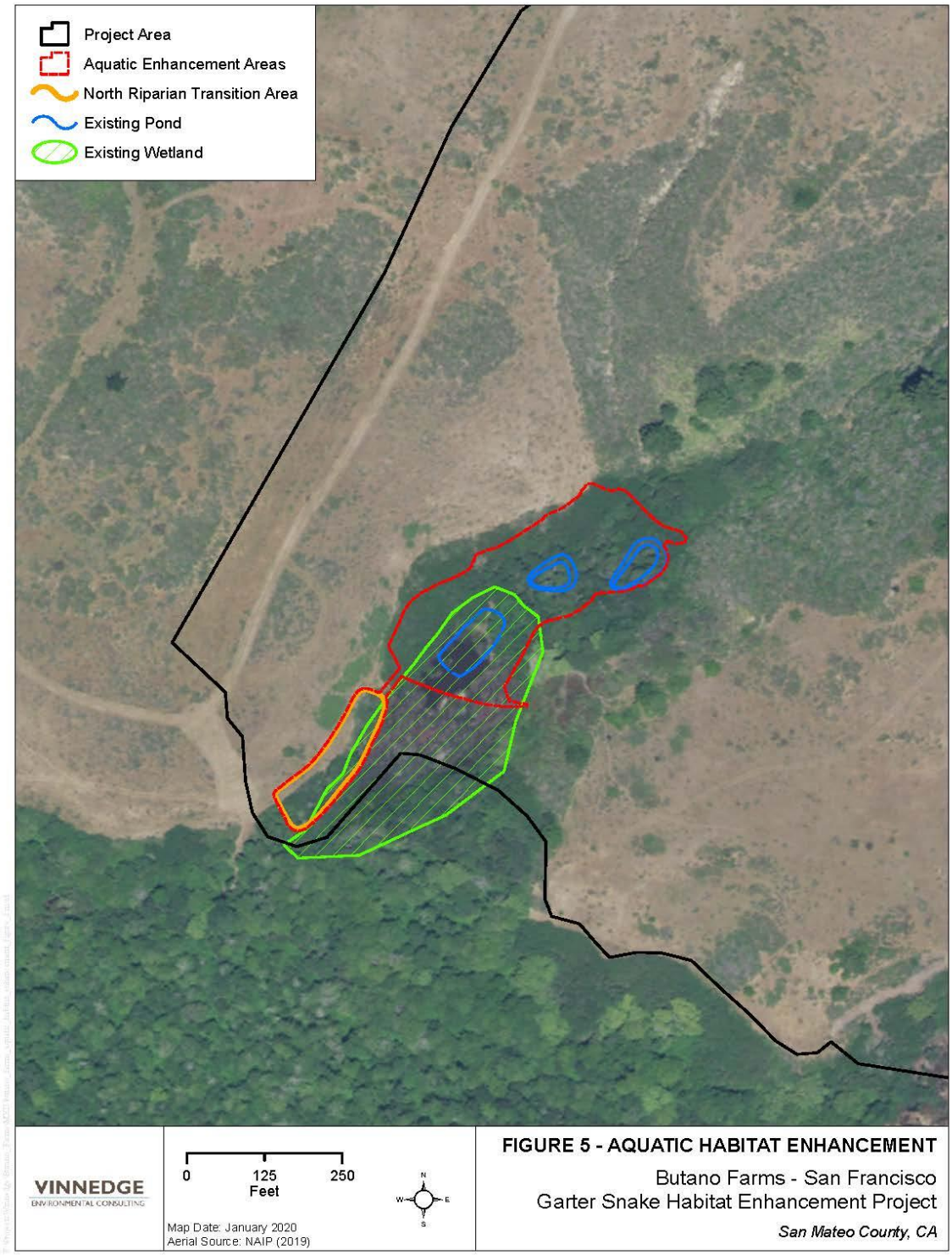


Figure 4. Aquatic Habitat Enhancement



Site Photos

Existing Pond (facing southwest)

View of pond from upland (facing south)

View of upland from west edge of pond (facing north)

Upland habitat including coyote brush, jubata grass (facing southwest)

EXHIBIT B

Cost Proposal

BUTANO FARMS SAN FRANCISCO GARTER SNAKE
HABITAT ENHANCEMENT PROJECT

To: Board of Directors, San Mateo Resource Conservation District

We, the undersigned, having familiarized ourselves with all project plans and local conditions affecting the cost of work to be done, along with the cost proposal and contract documents, hereby propose to provide and furnish all labor, materials, utilities, transportation, and equipment of all types and kinds and to complete the project as specified and described in Exhibit A.

We, the undersigned, agree to perform all of the above work to its completion and to the satisfaction of the RCD for the rates and prices for said work as indicated below.

We, the undersigned, understand that the contract is a lump sum contract. The Contractor cannot be paid over the sum not to exceed without a change order from the RCD. The RCD will not be responsible for any loss of anticipated profits due to reductions in the size of the contract.

Bid Schedule

ITEM NO.	ITEM	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL
0	DESIGN REVIEW, CONSTRUCTION FEASIBILITY, VALUE ENGINEERING	1	LS		
1	MOBILIZATION	1	LS		
2	DEVELOP AND RESTORE TEMPORARY ACCESS ROUTE	1	LS		
3	SWPPP DEVELOPMENT, IMPLEMENTATION & REPORTING	1	LS		
4	TEMPORARY FENCE - TYPE ESA	300	LF		
AQUATIC ACTIVITIES					
5	CLEARING AND GRUBBING, AQUATIC (EXCLUDES THINNING AREA)	1.38	AC		
6	TRIM AND THIN WILLOWS (SOUTHWEST SIDE POND)	1	LS		
7	DEWATERING AND TURBIDITY CURTAIN	1	LS		
8	UNCLASSIFIED EXCAVATION (STAYS ONSITE)	3,500	CY		
9	ENGINEERED FILL IN BENCH (ASSUMES 20% LOSSES)	2,800	CY		
10	ENGINEERED FILL IN BERMS	350	CY		
11	GABION ROCK SPILLWAYS IN SEDIMENT RETENTION BERM	49	CY		
12	SILT FENCE	575	LF		
13	SEEDING & MULCHING	1	AC		
14	WILLOW STAKES & BRUSH LAYERING	2,00	EA		
15	WILLOW ROOTWAD SALVAGE AND REPLANTING	20	EA		
UPLAND ACTIVITIES					
16	TREE FELLING	20	EA		
17	TREE GIRDLING	5	EA		
18	TREE/SHRUB CHIPPING (ALL MATERIAL STAYS ONSITE)	1	LS		
19	SHRUB REDUCTION	7.7	AC		
20	INVASIVE WEED (JUBATA GRASS) TREATMENT	1.8	AC		
21	SPREAD WOOD CHIPS	2.4	AC		

Total Bid (in numbers):

_____

Total Bid (in words):

_____

CERTIFICATION

I hereby certify that:

A. All of the statements herein made by me are made on behalf of _____

[company name], _____ [Director/CEO name]

B. I have thoroughly examined the plans and specifications, contract documents and all other items bound herein;

C. I have carefully prepared this Cost Proposal form and have checked the same in detail before submitting this bid;

D. I have full authority to make such statements and to submit this bid on the Company's behalf; and

E. The statements herein are true and correct.

Signature _____ Date _____

By _____

Title _____

Calif. Contractor's License #: _____ Classification: _____

Name of Qualifier for License: _____

Federal Tax Identification #: _____

Company Address: _____

Phone: _____ Email: _____

Project Representative: _____

Representative's Phone: _____ Email:_____

1. SUBCONTRACTORS

List subcontractors you are planning to use on this project, if any. Provide company name and California contractor license number and classification.

Name of Subcontractor: _____

License #: _____ Classification: _____

Name of Subcontractor: _____

License #: _____ Classification: _____

Name of Subcontractor: _____

License #: _____ Classification: _____

Name of Subcontractor: _____

License #: _____ Classification: _____

Name of Subcontractor: _____

License #: _____ Classification: _____

Name of Subcontractor: _____

License #: _____ Classification: _____

2. REFERENCES

List projects and contact information for use as reference or attach reference documentation.

PROJECT NAME _____

Brief description of project:

Date(s) constructed:

Reference (name & phone) _____

PROJECT NAME _____

Brief description of project:

Date constructed:

Reference (name & phone) _____

PROJECT NAME _____

Brief description of project

Date constructed:

Reference (name & phone)

EXHIBIT C
Sample Contract

SAN MATEO RESOURCE CONSERVATION DISTRICT
PROFESSIONAL SERVICES AGREEMENT WITH
CONTRACTOR

THIS AGREEMENT ("Agreement"), made and entered into this ____ day of _____, 2020 is by and between the **SAN MATEO RESOURCE CONSERVATION DISTRICT,** a political subdivision of the State of California, hereinafter referred to as "**RCD**," and **CONTRACTOR**, hereinafter referred to as "**CONTRACTOR**."

WITNESSETH:

WHEREAS, XXXX; and

WHEREAS, RCD desires to use the professional services of CONTRACTOR; and

WHEREAS, CONTRACTOR has the professional and administrative ability to implement such services; and

WHEREAS, RCD and CONTRACTOR desire to set forth in writing the obligations and responsibilities of each party relating to the services;

NOW, THEREFORE, in consideration of the promises and mutual benefits which will accrue to the parties hereto in carrying out the terms of this Agreement, the parties agree as follows:

1. **Scope of Services**
   a. CONTRACTOR will, in accordance with the terms of this Agreement, perform the services set forth in Attachment 1, Project Name- Contractor Name- ***Scope of Services***, hereinafter referred to as **"PROJECT**", which is attached hereto and incorporated herein by reference.
   b. This Agreement is limited both in scope and duration, as herein specified.

2. **Term of Agreement**. Subject to compliance with all applicable terms and conditions, the term of this Agreement shall commence on (Date) and terminate on (Date).

3. **Performance Responsibilities.** Contractor shall complete the herein described services by no later than (Date) unless a later date is agreed upon by the parties in writing. Time is and shall be of the essence in the performance of the specified services by CONTRACTOR.

4. **Compensation.**
   a. In consideration of the services provided by CONTRACTOR in accordance with all applicable terms, conditions and specifications set forth in this Agreement and in

Attachment 1, RCD agrees to pay CONTRACTOR an amount not to exceed AMOUNT AS TEXT**,** ($xx.xx) for the successful and timely completion of the specified services. In no event shall RCD's total fiscal obligation under this Agreement exceed (AMOUNT AS TEXT ($xx.xx). In the event that RCD makes any advance payments, CONTRACTOR agrees to refund any amounts in excess of the amount owed by RCD at the time of contract termination or expiration. CONTRACTOR is not entitled to payment for work not performed as required by this Agreement.

b. In the event that the funding on which the above described contract services relies is materially reduced or made unavailable, despite the parties' understandings and expectations that no such shortage of funding will occur, RCD may terminate this Agreement or a portion of the services referenced in the Attachments and Exhibits based upon the unavailability of funds by providing written notice to CONTRACTOR as soon as is reasonably possible after RCD learns of said unavailability of outside funding.

5. **Billing and Payment Procedure.** CONTRACTOR will submit requests for payment along with documentation acceptable to the RCD no more frequently than monthly and no less frequently than quarterly. RCD will issue payment to CONTRACTOR within 30 days of payment to the RCD by the project funder.

6. **Cooperation.** RCD and CONTRACTOR agree to cooperate to the greatest extent possible to complete the PROJECT. CONTRACTOR will notify RCD in writing of any new developments, information, issues or concerns that are reasonably expected to negatively impact the PROJECT and/or its completion as soon as practicable.

7. **Assignment**. This Agreement is not assignable by CONTRACTOR in whole or in part without the authorized written consent of RCD,

8. **Conflict of Interest**. The CONTRACTOR shall comply with all applicable State laws and rules pertaining to conflicts of interest, including but not limited to, Government Code Section 1090 and Public Contract Code 10410 and 10411.

9. **Applicable Laws.** All work performed on behalf of the RCD, as set forth in this Agreement shall be performed in accordance with all applicable state, local and federal laws, regulations, policies, procedures, and standards, and any failure to do so shall constitute a material breach of the Agreement by CONTRACTOR, which may be waived by RCD at its sole discretion subject to cure or mitigation of the violation.

10. **Wages**. All work implemented by the RCD, a public agency, is considered a public work or public improvement project. As public projects, they are subject to prevailing wage and other requirements included in California Labor Code §1720 - 1861. CONTRACTOR, and any subcontractor working under CONTRACTOR, shall pay not less than the specified prevailing rates of wages to all workers employed in the execution of the Contract. Prevailing wage determinations can be found at Department of Industrial Relations website.

11. **No Benefit To Arise For Local Employees.** Except as provided by State law, no member, officer, or employee of RCD or its designees or agents, and no public official who exercises authority over or has responsibilities with respect to the Project during their tenure or for one (1) year thereafter, shall have any interest, direct or indirect, in any agreement or sub-agreement or the proceeds thereof, for work to be performed in connection with the services performed under this Agreement.

12. **Independent Contractor Status.** The CONTRACTOR, and the officers, the agents and employees of the CONTRACTOR, in the performance of the Agreement, shall act in an independent capacity and not as officers, employees or agents of the RCD. Nothing in this Agreement is intended nor shall be construed to create an employer-employee relationship, and neither CONTRACTOR nor its employees acquire any of the rights, privileges, powers or advantages of RCD employees.

13. **Standard of Professionalism.** CONTRACTOR shall conduct all work under this Agreement consistent with professional standards for the industry and type of work being performed hereunder.

14. **Ownership of Materials.** Except as otherwise expressly stated in Attachment 1, all materials and work products, including data collected for the Work produced as a result of this Agreement are the property of the RCD. Any final products distributed or produced will acknowledge the CONTRACTOR, RCD, and other Funding Agencies as reasonably requested by the RCD. The RCD shall be entitled to use and publish the work product and deliverables under this Agreement.

15. **Indemnification.** To the fullest extent permitted by applicable law, CONTRACTOR agrees to defend, at CONTRACTOR's expense and with counsel acceptable to RCD, indemnify, and save and hold harmless RCD, Funding Agencies, and all of their officers, directors, employees and agents, from and against any and all claims, suits, losses, causes of action, damages, liabilities, and expenses of any kind whatsoever arising out of the performance or nonperformance of the CONTRACTOR's work, including without limitation, all expenses of litigation and/or arbitration, court costs, and attorneys' fees, arising on account of or in connection with injuries to or the death of any person whomsoever, or any and all damages to property, regardless of possession or ownership, which injuries, death or damages arise from, or are in any manner connected with, the work performed by or for the CONTRACTOR under this Agreement, or are caused in whole or part by reason of the acts or omissions or presence of the person or property of the CONTRACTOR or any of its employees, agents, representatives and or suppliers.

16. **Insurance.** CONTRACTOR shall obtain and maintain for the duration of this Agreement, comprehensive general liability insurance and/or other insurance necessary to protect the parties hereto, and shall provide RCD with evidence thereof prior to commencement of any work under this Agreement. CONTRACTOR shall

have RCD named as an additional insured on its insurance policy, which shall have minimum coverage limits as specified on Attachment 1 hereto, incorporated herein by reference. CONTRACTOR's above described insurance shall serve as the primary insurance coverage for any claim arising from or relating to the services to be performed hereunder.

17. Nondiscrimination and Other Requirements

a. **General Nondiscrimination:** CONTRACTOR will not discriminate in employment practices or in the delivery of services on the grounds of race, color, national origin, ancestry, age, disability (physical or mental), sex, sexual orientation, gender identity, marital or domestic partner status, religion, political beliefs or affiliation, familial or parental status (including pregnancy), medical condition (cancer-related), military service, or genetic information.

b. **Equal Employment Opportunity:** CONTRACTOR shall ensure equal employment opportunity based on objective standards of recruitment, classification, selection, promotion, compensation, performance evaluation, and management relations for all employees under this Agreement.

c. **Discrimination Against Individuals with Disabilities:** The nondiscrimination requirements of 41 C.F.R. 60-741.5(a) are incorporated into this Agreement as if fully set forth here, and CONTRACTOR and any subcontractor(s) shall abide by the requirements of 41 C.F.R. 60–741.5(a). This regulation prohibits discrimination against qualified individuals on the basis of disability and requires affirmative action by covered prime contractors and subcontractors to employ and advance in employment qualified individuals with disabilities.

d. **History of Discrimination:** CONTRACTOR certifies that no finding of discrimination has been issued in the past 365 days against CONTRACTOR by the Equal Employment Opportunity Commission, the California Department of Fair Employment and Housing, or any other investigative entity. If any finding(s) of discrimination have been issued against CONTRACTOR within the past 365 days by the Equal Employment Opportunity Commission, the California Department of Fair Employment and Housing, or other governmental investigative entity, CONTRACTOR shall provide the RCD with a written explanation of the outcome(s) or remedy for the discrimination prior to execution of this Agreement. Failure to comply with this Section shall constitute a material breach of this Agreement and subjects the Agreement to immediate termination at the sole option of the RCD.

18. Notices. Any notice required to be given pursuant to the terms and provisions of this Agreement shall be in writing and shall be sent first-class mail. Notice shall be deemed to be effective two (2) days after mailing to the following addresses:

To RCD: Kellyx Nelson, Executive Director
San Mateo Resource Conservation District

80 Stone Pine Road, Suite 100
Half Moon Bay, CA 94019

To CONTRACTOR: Name, Title
Contractor
Address

19. **Amendments and Integration.** This Agreement supersedes all previous agreements or understandings, and constitutes the entire understanding between the parties with respect to the above referenced services, terms of compensation, and otherwise. This Agreement shall not be amended, except in a writing that is executed by authorized representatives of both parties.

20. **Counterparts. Electronic or Digital Signature Transmitted By Electronic Mail or Facsimile.** This Agreement may be executed in counterparts and a digital and/or electronic signature provided by either party shall be deemed the equivalent of an original signature and may be transmitted by one party to the other via electronic mail or facsimile, which taken together shall constitute one in the same agreement, each bearing original signatures, and shall be effective as of the date of the last signature appearing thereon. by any electronic, digital, or facsimile signatures.

21. **Termination.** This Agreement may be terminated for any of the following reasons:
    a. If CONTRACTOR fails to perform the services hereunder agreed to the satisfaction of RCD, or otherwise fails to fulfill its obligations under this Agreement, immediately upon written notice from RCD; and
    b. RCD may terminate this Agreement or a portion of the services referenced in the Attachments and Exhibits based upon the unavailability of funds by providing written notice to Contractor as soon as is reasonably possible after RCD learns of said unavailability of funding.

IN WITNESS WHEREFORE, the parties agree to the foregoing terms and conditions and hereby enter into this Agreement.

Date: _____ By:_____
Name, Title
Address

Date: _____ By:_____
Kellyx Nelson, Executive Director
San Mateo Resource Conservation District

SAMPLE CONTRACT - ATTACHMENT 1
Scope of Services

SAMPLE CONTRACT - ATTACHMENT 2
INSURANCE

CONTRACTOR shall procure and maintain for the duration of this Agreement insurance against claims and injuries to persons or damages to property which may arise from or in connection with the work hereunder by CONTRACTOR, its agents, representatives, employees or subcontractors. The cost of such insurance shall be the sole responsibility of CONTRACTOR.

1. Minimum Scope of Coverage and Limits of Insurance:
    a. Comprehensive General Liability: $1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage.
    b. Automobile Liability: $500,000 combined single limit per accident for bodily injury and property damage.
    c. Worker's Compensation: Limits as set forth in the Labor Code of the State of California.

2. Contractors Liability Insurance Policy shall contain the following clauses:
    a. RCD is added as an additional insured as respects operation of the named insured formed under contract with RCD.
    b. It is agreed that any insurance maintained by RCD shall apply in excess of, and not contribute with, insurance provided by this policy.
    c. The insurer agrees to waive all rights of subrogation against RCD, its officers and employees for losses arising from work performed by CONTRACTOR for RCD.

3. Each insurance policy required herein shall be endorsed to state that coverage shall not be cancelled, limited, or non-renewed except after thirty (30) days written notice has been given to RCD. Certificates of insurance evidencing the coverage required by the clauses set forth above shall be filed with RCD within 10 working days to the effective date of this Agreement.

EXHIBIT D
San Mateo RCD Insurance Requirements
Contract Construction Services
BUTANO FARMS SAN FRANCISCO GARTER SNAKE
HABITAT ENHANCEMENT PROJECT

CONTRACTOR shall procure and maintain for the duration of this Agreement insurance against claims and injuries to persons or damages to property which may arise from or in connection with the work hereunder by CONTRACTOR, its agents, representatives, employees or subcontractors. The cost of such insurance shall be the sole responsibility of CONTRACTOR.

1. Minimum Scope of Coverage and Limits of Insurance:

a. Comprehensive General Liability: $1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage.

b. Automobile Liability: $500,000 combined single limit per accident for bodily injury and property damage.

c. Worker's Compensation: Limits as set forth in the Labor Code of the State of California.

2. Contractors Liability Insurance Policy shall contain the following clauses:
   a. RCD is added as an additional insured as respects operation of the named insured formed under contract with RCD.
   b. It is agreed that any insurance maintained by RCD shall apply in excess of, and not contribute with, insurance provided by this policy.
   c. The insurer agrees to waive all rights of subrogation against RCD, its officers and employees for losses arising from work performed by CONTRACTOR for RCD.

3. Each insurance policy required herein shall be endorsed to state that coverage shall not be cancelled, limited, or non-renewed except after thirty (30) days written notice has been given to RCD. Certificates of insurance evidencing the coverage required by the clauses set forth above shall be filed with RCD within 10 working days to the effective date of this Agreement.

EXHIBIT E
Labor Compliance Program
BUTANO FARMS SAN FRANCISCO GARTER SNAKE
HABITAT ENHANCEMENT PROJECT

The state labor law requirements applicable to the contract are composed of, but not limited to, the following:

1. Payment of Prevailing Wage Rates
The award of a public works contract requires that all workers employed on the project be paid not less than the specified general prevailing wage rates by the contractor and its subcontractors. Prevailing wage determinations for this project can be obtained at: **www.dir.ca.gov.** This includes a total package including fringe benefits and training contributions which are paid to the employee or for the benefit of the employee to a bona fide ERISA approved or otherwise unconditionally paid for the benefit of the employee Trust Fund.

The contractor is responsible for obtaining and complying with all applicable general prevailing wage rates for trades workers and any rate changes, which may occur during the term of the contract. Prevailing wage rates and rate changes are to be posted at the job site for workers to view. Or the contractor may post a notice stating where the prevailing wage determinations are available on the jobsite and the contractor shall provide access to such information upon reasonable notice.

2. DIR Registration
All individuals or companies performing prevailing wage work on this project must be registered as a public works contractor and pay an annual fee of $300 to the Department of Industrial Relations (DIR). This includes all work covered by prevailing wage such as trucking, surveying, building inspection and so on.

3. Apprentices
It is the duty of the contractor and subcontractors to employ registered apprentices on public works projects per Labor Code Section 1777.5; Contractors and subcontractors must submit proof of Public Works Contract Award Information (DAS140) or other documentation for Division of Apprenticeship Standards approved apprenticeship programs. Apprentices are to be employed in all crafts and in all trades with approved training programs. Contactors are to employ apprentices on a ratio of 1 apprentice hour for every 5 journeymen hours or as otherwise approved by the DAS approved Apprenticeship Training Committee. Contractors and subcontractors who do not meet this ratio must submit documentation that apprentices were requested and were not provided and/or not available in sufficient number to meet this ratio. The submission of an accurate DAS142(s) meets this requirement. Additional documentation may be required to verify the apprenticeship status of employees.

4. Penalties
Penalties, including forfeitures and debarment, shall be imposed for contractor/subcontractor failure to pay prevailing wages, failure to maintain and submit accurate certified payroll records upon request, failure to employ apprentices, and for failure to pay employees for all hours worked at the correct prevailing wage rate, in accordance with Labor Code Sections 1775, 1776, 1777.7, and 1813. Monetary penalties of $200 per day per worker shall be imposed for failure

to pay correct prevailing wage; $25 per day per worker shall be imposed for overtime violated; $100 per day per worker for failure to provide certified payroll information; $100-$300 per calendar day for noncompliance of Apprenticeship issues.

5. Certified Payroll Records

Per Labor Code Section 1776, contractors and subcontractors are required to keep accurate payroll records which reflect the name, address, social security number, and work classification of each employee; the straight time and overtime hours worked each day and each week; the fringe benefits; and the actual per diem wages paid to each journeyperson, apprentice, worker, or other employee hired in connection with a public works project. A listing of all current prevailing wage determinations can be obtained from the Agency's main office or by accessing the Department of Industrial Relation's website at: www.dir.ca.gov

Employee payroll records shall be certified (signed under penalty of perjury by someone in authority at the company) and shall be made available for inspection at all reasonable hours at the principal office of the contractor/subcontractor, or shall be furnished to any employee, or to his or her authorized representative on request. Disclosure of certified payroll information to anyone other than the Awarding Body, its agent, or the Department of Industrial Relations requires that personal information about the employees (name, address and social security number) listed on the forms be redacted (omitted) to protect employee privacy.

Contractors and subcontractors shall maintain their certified payrolls on a weekly basis and shall submit said payrolls on a monthly basis in conjunction with contractor's requests progress or final payment. In the event that there has been no work performed during a given week, the Certified Payroll Record shall be annotated "No Work" for that week. The Agency or its authorized representative is also authorized to request and review all related payroll records such as time cards, cancelled checks, etc. For all projects awarded after April 1, 2015, certified payrolls must also be submitted to the DIR the electronically through their eCPR system.

While the DIR accepts electronic versions of your certified payroll, the DIR and this agency may also request copies of the original certified payroll and supporting documentation at any time.

6. Nondiscrimination in Employment

Prohibitions against employment discrimination are contained in Labor Code Sections 1735 and 1777.6; the Government Code; the Public Contracts Code; and Title VII of the Civil Rights Act of 1964, as amended. All contractors and subcontractors are required to implement equal employment opportunities as delineated below:

a. Equal Employment Poster

The equal employment poster shall be posted at the job site in a conspicuous place visible to employees and employment applicants for the duration of the project. All other labor and employment related posters are also to be properly displayed on the jobsite.

7. Kickback Prohibited

Per Labor Code Section 1778, contractors and subcontractors are prohibited from accepting, taking wages illegally, or extracting "kickback" from employee wages;

8. Acceptance of Fees Prohibited

Contractors and subcontractors are prohibited from exacting any type of fee for registering individuals for public work (Labor Code Section 1779); or for filling work orders on public works contracts (Labor Code Section 1780);

9. Listing of Subcontractors

Contractors are required to list all subcontractors hired to perform work on a public works project when that work is equivalent to more than one-half of one percent of the total contract amount or $10,000 whichever is greater. (Public Contract Code Section 4100, et seq.);

10. Proper Licensing

Contractors and subcontractors are required to be properly licensed. Penalties will be imposed for employing workers while unlicensed (Labor Code Section 1021 and Business and Professions Code Section 7000, et seq. under California Contractors License Law);

11. Unfair Competition Prohibited

Contractors and subcontractors are prohibited from engaging in unfair competition (Business and Professions Code Sections 17200-17208);

12. Workers' Compensation Insurance

All contractors and subcontractors are required to be insured against liability for workers' compensation, or to undertake self-insurance in accordance with the provisions of Labor Code Section 3700 (Labor Code Section 1861);

13. OSHA

Contractors and subcontractors are required to comply with the Occupational, Safety and Health laws and regulations applicable to the particular public works project.

14. Prompt Payment of Subcontractors and Suppliers

Contractors are required by law to promptly pay their subcontractors and suppliers within seven (7) days of receipt of any progress or final payment from the Public Agency. Likewise, the subcontractor and supplier are required to pay their respective subcontractors and suppliers within seven (7) days of receipt of payment from the general contractor. When the payment to the contractor is a release of final retention on the project, those funds must be paid within seven (7) days of receipt.

15. IRCA

Pursuant to the Immigration Reform and Control Act of 1986, employers are required to verify that all employees working on public works contracts are legally able to work in the United States. Employers shall keep on file appropriate I-9 forms and documentation for all workers employed on the jobsite and make such forms available to inspection and review by the LCO upon request.

16. Jobsite Interviews

Jobsite interviews are required on a regular basis on this project, CCMI may conduct random jobsite interviews as necessary to meet labor compliance obligations. Please contact Field Representative Christina Sanchez once project has a confirmed start date. Her phone number is (650) 759-9891.

17. Certification of Electricians

Those employing electricians must comply with employment testing and certification requirements for electricians. Additional information may be required to verify the certification status of those employed.

18. Employee Wage Statements – It is required to provide itemized wage statements (pay stubs) to Employees under Labor Code Section 226.

19. Posting of Labor Compliance – Notice of Labor Compliance Approval is required to be posted at the job site in accordance with section 16429, listing a telephone number to call for inquiries, questions, or assistance with regard to the Labor Compliance Program. (Sample attached in handout).

20. Confirmation of Payroll Records – Confirmation of payment to employees for each contactor and subcontractor shall be undertaken randomly for at least one worker for at least one weekly period within that month. This will entail a monthly request of the front and back of a canceled check and employee pay stub for each contractor/subcontractor. Per Title 8 of the California Code Regulations section 16432(c).

21. Public Works Contractor Registration – Only those businesses who have registered and paid the applicable fee to the Department of Industrial Relations as a Public Works Contractor will be allowed to work on the project.

I acknowledge that I have been informed and am aware of the foregoing requirements and that

I am authorized to make this certification on behalf of _____.

(Name of Contractor)

_____

Signature

_____

Name

_____

Title of Contractor Authorized Representative

EXHIBIT F
Certificate of Compliance
BUTANO FARMS SAN FRANCISCO GARTER SNAKE
HABITAT ENHANCEMENT PROJECT

TO: SAN MATEO RESOURCE CONSERVATION DISTRCT

PROJECT: BUTANO FARMS SAN FRANCISCO GARTER SNAKE
HABITAT ENHANCEMENT PROJECT

This is to certify that all requirements for insurance of subcontractors as specified have been met.

_____
[***Contractor]***

_____
By

_____
Dated

Please return this completed form with your Bonds and Certificates of Insurance within 7 days of notice of award

EXHIBIT G
Billing Instructions for Contractors
BUTANO FARMS SAN FRANCISCO GARTER SNAKE
HABITAT ENHANCEMENT PROJECT

Process and timing
Invoices will be reviewed by the RCD staff before submittal to grant funders. Invoices will be paid upon receipt of funds from the grantor, a process that may take up to 120 days from the time of submittal to the grantor by the District.

Format
In order to be paid promptly, you should use the attached invoice template, or include all elements in the template on your invoice.

Task: If your contract or work order shows that you will be performing more than one task specified in the budget, please break down the charges on your invoice by task.

Description: Provide a thorough but concise description of all work included on the invoice. Include a breakdown of equipment and labor rates, hours and dates worked, materials, subcontractors and other costs.

Please submit your invoice to:

San Mateo Resource Conservation District
80 Stone Pine Road, Suite 100
Half Moon Bay, CA 94019

EXHIBIT H
Project Biological Opinion

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

In Reply Refer to:
08ESMF00-
2013-F-0430-R002

OCT 0 2 2018

Rick M. Bottoms, Ph.D.
Attn: Naomi Schowalter
Department of the Army
San Francisco District, Corps of Engineers
1455 Market Street
San Francisco, California 94103-1398

Subject: Second Reinitiation of Formal Consultation on the Pacific Gas and Electric Company (PG&E) Line 101 In-line Inspection and Upgrade and Lomita Park Station Rebuild Project in the City of Millbrae, San Mateo County, California (U.S. Army Corps of Engineers [Corps] file number 2013-00142S)

Dear Dr. Bottoms:

This letter is in response to PG&E's May 14, 2018, request for the reinitiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed PG&E Line 101 In-line Inspection and Upgrade and Lomita Park Station Rebuild Project (proposed project) in the City of Millbrae, San Mateo County, California (Corps file number 2013-00142S). The request was received by the Service on May 14, 2018. PG&E requested the reinitiation of consultation to cover the effects of the implementation of the offsite restoration actions at Butano Farms near the Town of Pescadero, San Mateo County, California, that are part of the habitat compensation for the proposed project. At issue are the proposed project's effects on the federally threatened California red-legged frog (*Rana draytonii*) and its designated critical habitat, and the endangered San Francisco garter snake (*Thamnophis sirtalis tetrataenia*). This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

The federal action on which we are consulting is the Corps' issuance of a permit to PG&E pursuant to Section 404 of the Clean Water Act of 1972, as amended (33 U.S.C. § 1344 et seq.) for the temporary disturbance of 0.09 acre of seasonal wetland habitat at the PG&E Lomita Park Station in the City of Millbrae, San Mateo County, California. Pursuant to 50 CFR 402.12(j), you submitted a biological assessment for our review and requested concurrence with the findings presented therein. These findings conclude that the proposed project may affect, and is likely to adversely affect the California red-legged frog and San Francisco garter snake. ***The biological assessment for the restoration actions at the Butano Farms habitat enhancement area concluded that the proposed project is not likely to adversely affect California red-legged frog critical habitat.***

In considering your request, we based our evaluation on the following: (1) the information provided in the Corps' May 7, 2013, letter; (2) the *Biological Assessment for the Line 101 In-line Inspection Upgrade and Lomita Park Regulator Station Rebuild Project* dated July 2014 (Swaim Biological Inc. 2014a); (3) the *Recovery Action Plan for the San Francisco Garter Snake West-of-Bayshore Property, San Francisco International Airport* dated April 24, 2008 (LSA Associates 2008); (4) the Service's August 18, 2014, biological

opinion for the proposed project (Service file number 08ESMF00-2014-F-0430, Service 2014); (5) the "Long-Term Management Plan Millbrae Substation Conservation Area, San Mateo County, California", dated November 27, 2017 (LSA Associates 2017); (6) the "Concept Level Project Description Butano Farms Habitat Pond Project Wetland and Upland Habitat Enhancement for San Francisco Garter Snake", dated ~~March 7~~***May 9***, 2018 (San Mateo Resource Conservation District (San Mateo RCD) 2018***a***); (7) ***the Service's April 12, 2018, first amendment to the biological opinion for the proposed project (Service file number 08ESMF00-2014-F-0430-R001, Service 2018); (8) the "Effects Analysis for Butano Farms SFGS Habitat Enhancement Project, San Mateo County, California", dated May 11, 2018 (San Mateo RCD 2018b); (9) the "Herbicide Use Guidance Butano Farms SFGS Habitat Enhancement Project Wetland and Upland Habitat Enhancement for San Francisco Garter Snake", dated July 12, 2018 (San Mateo RCD 2018c); (10)*** conversation and communications among PG&E, the Corps, LSA Associates, Swaim Biological Inc., San Mateo RCD, Peninsula Open Space Trust (POST), and the Service; and ~~(8)~~ ***(11)*** other information available to the Service.

The Service concurs that the proposed project is not likely to adversely affect California red-legged frog critical habitat because: (1) the restoration activities at the Butano Farms habitat enhancement area are designed to benefit the California red-legged frog through improved water quality, enhancement of shallow water breeding and tadpole rearing habitat, increasing open water habitat, and increasing the longevity of the breeding pond by reducing sedimentation into the pond; (2) habitat disturbance at the Butano Farms habitat enhancement area will be temporary; and (3) best management practices will be implemented to minimize the potential for the degradation and contamination of breeding habitat at the Butano Farms pond.

The remainder of this document provides our biological opinion on the effects of the proposed project on the California red-legged frog and San Francisco garter snake. Changes to the April 12, 2018, first amendment to the biological opinion are illustrated below with additions in ***bold italics*** and deletions with ~~strikethrough~~ notation.

Consultation History

February 19, 2013:	The Service attended a meeting with PG&E and the California Department of Fish and Wildlife (CDFW) to discuss the proposed project.
May 8, 2013:	The Service received a letter from the Corps requesting initiation of consultation for the proposed project.
January 29, 2014:	PG&E contacted the Service to inquire about the status of the proposed project.
March 24, 2014:	The Service attended a site visit.
June 3, 2014:	The Service met with representative from PG&E, Swaim Biological, and San Francisco International Airport at the project site.
June 4, 2014:	The Service received a revised biological assessment (Swaim Biological Inc. 2014a).
June 21, 2014:	The Service provided comments on the *California Red-legged Frog and San Francisco Garter Snake Habitat Mitigation and Monitoring Plan for the Line 101 In-line Inspection Upgrade and Lomita Park Regulator Station Rebuild Project* (Swaim Biological Inc. 2014b).
August 6, 2014:	The Service received a revised Habitat Mitigation and Monitoring Plan.
August 7 to 13, 2014:	The Service and PG&E exchanged emails to finalize the project description.
August 18, 2014:	The Service issued the biological opinion for the proposed project (Service file number 08ESMF00-2014-F-0430, Service 2014).

2015-2016: PG&E constructed the Lomita Park Station Rebuild Project portion of the proposed project in 2015. PG&E informed the Service that they would be unable to implement the proposed on-site 5.25-acre Habitat Mitigation and Monitoring Plan at the West-of-Bayshore property (Swaim Biological Inc. 2014b) because the landowner, the San Francisco International Airport, informed PG&E that the San Francisco International Airport would like to reserve any compensatory mitigation opportunities on their West-of-Bayshore property for use for their own projects. Therefore, PG&E would only be able to implement the portions of the proposed habitat compensatory mitigation plan that occur on PG&E's Millbrae Substation property (5.17-acre Millbrae conservation area) that are contiguous with the southern portion of the San Francisco International Airport's West-of-Bayshore property. PG&E proposed reducing the amount of habitat compensation and/or implementing the habitat compensation in phases since only part of the proposed project (the Lomita Park Station Rebuild Project) had been constructed. PG&E stated that they did not know when they would have the funding to begin construction of the Line 101 In-line Inspection and Upgrade (horizontal directional drilling (HDD)) portion of the proposed project. The Service stated that the biological opinion would need to be amended to address the changes to the proposed habitat compensatory mitigation and that PG&E could not begin construction of the Line 101 In-line Inspection and Upgrade Project until the Service had received and approved a revised habitat compensatory mitigation plan and issued an amendment to the biological opinion.

November 10, 2016: The Service attended a site visit to the proposed project site and the proposed Millbrae conservation area.

July 20, 2017: The Service participated in a conference call with PG&E to discuss the use of PG&E's proposed 5.17-acre Millbrae conservation area as habitat compensation for several PG&E projects. PG&E estimated that they could provide the long-term management plan and conservation easement documents for the Millbrae conservation area for the Service to review within a few weeks. PG&E proposed that of the 5.17 acres of California red-legged frog and San Francisco garter snake habitat compensation available on PG&E land at the Millbrae conservation area, 0.88 acre would be dedicated to the PG&E Line 132 Elbow Investigation Project (Service file number 08ESMF00-2015-F-0216-R002, Service 2017), 2.19 acres would be dedicated to the built portions of the Lomita Park Station Rebuild Project (Service file number 08ESMF00-2013-F-0430, Service 2014) that were constructed in 2015, and the remaining 2.10 acres would be dedicated to provide partial compensatory mitigation for the portions of the PG&E Line 101 In-line Inspection and Upgrade Project (Service file number 08ESMF00-2013-F-0430, Service 2014) yet to be built. The details of the revised compensatory mitigation strategy for the PG&E Line 101 In-line Inspection and Upgrade Project (in addition to the 2.10 acres at the Millbrae conservation site) would be addressed during the reinitiation of consultation for the PG&E Line 101 In-line Inspection and Upgrade and Lomita Park Station Rebuild Project (Service file number 08ESMF00-2013-F-0430-R001).

November 28, 2017: The Service received via electronic mail from PG&E the long-term management plan (LSA Associates 2017) and draft conservation easement documents for the 5.17-acre Millbrae conservation area.

November 29, 2017: The Service received via electronic mail from PG&E two draft proposals for offsite habitat compensation near the Town of Pescadero in San Mateo County, California: POST's Butano Farms in the Butano Creek watershed and the California Department of Parks and Recreation's Quiroste Valley Cultural Preserve in the Whitehorse Creek watershed (San Mateo RCD 2017a, 2017b). PG&E is considering utilizing the two sites to provide habitat compensation for the effects on the San Francisco garter snake and California red-legged frog of the PG&E Line 101 In-line Inspection and Upgrade Project (Service file number 08ESMF00-2013-F-0430-R001) and/or other future PG&E projects that would be covered by the recently permitted PG&E Bay Area Operation and Maintenance Habitat Conservation Plan (ICF 2017).

December 11, 2017: The Service discussed with the Corps the need to reinitiate consultation on the proposed project to address the proposed changes to the habitat compensation.

February 28, 2018: The Service attended a site visit with PG&E, San Mateo RCD, and POST to the two proposed offsite San Francisco garter snake and California red-legged frog habitat compensation sites near the Town of Pescadero at Butano Farms and the Quiroste Valley Cultural Preserve. The Service observed several California red-legged frog egg masses and tadpoles in the pond at the Butano Farms site during the site visit.

March 9, 2018: The Service received via electronic mail from the Corps the request to reinitiate formal consultation on the proposed project to incorporate the changes to the proposed habitat compensation.

March 13, 2018: The Service received from PG&E the revised habitat compensation proposal which includes pond and upland habitat enhancement and management of approximately 65 acres for the San Francisco garter snake and California red-legged frog over a 30-year period at POST's Butano Farms near the Town of Pescadero in San Mateo County (San Mateo RCD 2018*a*); 7.43 acres of the habitat compensation will be credited to the PG&E Line 101 In-line Inspection and Upgrade and Lomita Park Station Rebuild Project (Service file number 08ESMF00-2013-F-0430-R001) and the remaining 57.57 acres, if approved by the Service, may be credited toward other PG&E projects that will be covered by the PG&E Bay Area Operation and Maintenance Habitat Conservation Plan (ICF 2017).

April 12, 2018: ***The Service issued the first amendment to the biological opinion for the proposed project that changed the conservation strategy by replacing the proposed onsite habitat enhancements with 7.43 acres of offsite habitat restoration at the 65-acre Butano Farms habitat enhancement area (Service file number 08ESMF00-2013-F-0430-R001, Service 2018). The amendment to the biological opinion stated that the effects of the implementation of the restoration actions at the 65-acre Butano Farms habitat enhancement area would be covered under a future section 7 consultation.***

April 16, 2018: ***The Service provided comments to PG&E on the Long-Term Management Plan and draft conservation easement documents for the Millbrae conservation area. PG&E informed the Service that they were considering looking for an alternative to the Wildlife Heritage Foundation (possibly San Mateo RCD) to be the conservation easement holder for the Millbrae conservation area.***

May – July 2018:	***The Service received from PG&E the monthly construction monitoring reports for the PG&E Line 101 In-line Inspection and Upgrade Project.***
May 14, 2018:	***The Service received from PG&E the revised project description, conservation measures, and effects analysis for the offsite habitat restoration and management actions at the 65-acre Butano Farms habitat enhancement area (San Mateo RCD 2018a, 2018b).***
May 30, 2018:	***The Service sent via electronic mail to PG&E and San Mateo RCD a request that herbicide use best management practices be included for invasive plant species control work at the Butano Farms habitat enhancement area and that the measures in the "The Declining Amphibian Task Force Code of Practice" be implemented to prevent the introduction and spread of amphibian diseases.***
July 17, 2018:	***The Service received from San Mateo RCD the requested information on the herbicide use best management practices that would be implemented at the 65-acre Butano Farms habitat enhancement area (San Mateo RCD 2018c).***
August 1, 2018:	***The Service received via electronic mail from PG&E notification of the observation of a dead California red-legged frog that had desiccated along the outside of the wildlife exclusion fencing for the PG&E Line 101 In-line Inspection and Upgrade Project. PG&E stated that the biological monitors will conduct more frequent detailed inspections of the outside of the wildlife exclusion fencing to ensure no California red-legged frogs are stranded in areas where they cannot find cover.***

BIOLOGICAL OPINION

Description of the Action

The proposed Line 101 In-line Inspection and Upgrade and Lomita Park Station Rebuild Project, in Millbrae, San Mateo County, California will include replacing a section of pipeline and upgrading the Lomita Park Regulator Station equipment that regulates pressure along the pipeline. A 3,700-foot section of the line will be replaced by installing a new 3,200-foot pipe in a parallel alignment using horizontal directional drilling (HDD) and connecting it with the existing line at two points. The existing section of pipe will be retired in place. Upgrades to the pressure regulator station located north of the pipeline replacement section will include the installation of new and upgraded equipment and will require an expansion of the existing station and access roads totaling 0.12 acre.

Project Location

The project is located in northern San Mateo County, west of San Francisco International Airport and U.S. Highway 101, and east of the Caltrain right-of-way (i.e., railroad tracks that are owned and operated by the Peninsula Corridor Joint Powers Board). The project is located within undeveloped parcels (collectively known as the West-of-Bayshore property) that are owned by the City and County of San Francisco. The undeveloped parcels contain a utility corridor that includes Line 101 and aboveground electric transmission lines and structures. Bay Area Rapid Transit (BART) aerial structures and tracks transect the West-of-Bayshore property. Single-family homes are located immediately adjacent to the undeveloped parcels.

The new 24-inch-diameter pipeline will stretch from the Lomita Park Regulator Station in the north to approximately 700 feet southeast of Santa Paula Avenue in the south. Between Madrone Street and Santa Paula Avenue, the pipeline will run parallel to Bay Street for approximately 1,535 feet. The

pipeline passes underneath South Lomita Canal and Marina Vista Park. The existing Lomita Park Regulator Station is located approximately 200 feet east of the BART aerial structures and tracks and 250 feet west of U.S. Highway 101.

New Pipeline Installation

To minimize impacts to sensitive aboveground resources, PG&E will utilize HDD techniques to install approximately 3,200 feet of 24-inch-diameter pipe. Prior to HDD activities, PG&E will establish two excavation areas; the northern excavation area will be used for the entry bore pit and the southern excavation area will be used for the exit bore pit. Once inserted, PG&E will connect the new pipe to the existing Line 101 pipe. The excavation areas will measure a combined maximum of approximately 0.37 acre. These areas will be excavated to a depth of approximately 20 feet, resulting in a maximum of approximately 11,891 cubic yards of excavated material. Both excavation areas will be surrounded by temporary work areas that will be used for equipment storage and construction crew access. PG&E will install temporary exclusion fencing around the temporary work areas.

The approximately 3,200-foot-long pipe will be composed of shorter pipe segments that will be welded together in a temporary work area (i.e., pipe weld run-out) that extends from the northern HDD excavation area to Cupid Row Canal. Grading and excavation will not take place within the pipe weld run-out. The pipe will be placed on rollers so that it can be inserted into the HDD bore pit. After the pipe is welded together, PG&E will conduct hydrostatic pressure testing, which is discussed in further detail in the following section. Temporary exclusion fencing will be installed around the pipe weld run-out area.
Next, within the HDD excavation area, a pilot hole will be drilled and enlarged by using a reamer. During the drilling process, the contractor will track the HDD bore by using an aboveground tracking wire. The tracking wire will run the entire length of the HDD bore; vegetation removal may be required to ensure that the wire does not become entangled. The new 24-inch-diameter pipe will be pulled into the hole and connected or tied into the existing pipe. The excavation areas will be backfilled with the excavated soil, restored to approximate pre-project contours, and revegetated according to an approved revegetation plan. Any remaining spoils will be hauled off site and taken to an approved PG&E disposal facility.

Hydrostatic Testing

Line 101 will be hydrostatically tested to verify that it is safe to operate at its designed maximum operating pressure. Test water will be taken from an on-site location and stored in liquid storage tanks throughout the filling process, or water will be brought in by truck from an off-site location. Once the pipeline is filled to the appropriate level and ready for testing, the water will be slowly pressurized to the appropriate test pressure. Following the test, the water will be collected into seven liquid storage tanks, such as Baker™ Tanks, staged within the parking lot along 1st Avenue and discharged into a publicly owned treatment work (POTW). No water will be pulled from or discharged into the on-site canals.

Sniff Hole Installation

A sniff hole typically consists of a vertical pipe that extends from an existing gas pipeline to several feet above ground. Three sniff holes will be installed within the existing pipeline in the following locations:

- Approximately 100 feet northwest of Lomita Park Regulator Station
- Approximately 100 feet southeast of Lomita Park Regulator Station (within the Lomita Park Regulator Station rebuild work area)
- Approximately 300 feet southeast of the southern HDD excavation area along the access road

Each sniff hole will require an excavation area of approximately 100 square feet surrounded by a work area footprint of approximately 0.04 acre.

Existing Pipeline Retirement

The existing 20-inch-diameter A.O. Smith pipe with drip that is bypassed will be retired in place. Liquids that have been collected in the drip (a trap connected to a gas pipe used for collecting liquids and condensation) located south of South Lomita Canal will be removed by installing a hose to connect the drip to a tanker truck parked on Madrone Street. The hose will drain the liquids trapped in the drip into the tanker trucks and the liquids will be disposed of at a POTW. The bypassed pipe will be "cut and capped" by cutting the existing pipe in two locations that are close to where the new pipe is connected.

Lomita Park Regulator Station Rebuild

The existing facilities at Lomita Park Regulator Station are located within an area that measures approximately 70 feet by 65 feet (0.1 acre), and are enclosed by a chain-link fence, which will be removed. Although these facilities are primarily located underground, the station does include several aboveground structures. To accommodate the required upgrades, the station will be expanded by a total of approximately 0.09 acre (18 feet to the west and 30 feet to south), for a new permanent footprint of approximately 0.19 acre. The expanded station will be located entirely within PG&E's existing parcel.

Prior to conducting construction activities at Lomita Park Regulator Station, a temporary exclusion fence will be installed around the existing station. The exclusion fence will encompass an approximately 2.74-acre temporary construction area to protect wildlife from construction activities. The area will be used for storing spoils and staging construction equipment associated with the station expansion and will include the excavation areas associated with two sniff holes. Additionally, two eucalyptus trees and two electric poles will be removed and a new electric pole will be installed within the exclusion fence.

Once the rebuild of Lomita Park Regulator Station is complete, the new facilities will be tied in to the Line 101 gas pipeline. Excavation areas for the tie-ins will be located north of the existing station and south of the expanded station area. The excavation areas will measure a combined maximum of approximately 390 square feet. These areas will be excavated to a depth of approximately 6 feet, resulting in a maximum of approximately 87 cubic yards of excavated material. The excavation areas are surrounded by a large work area measuring a combined total of approximately 0.07 acre.

Following construction, the chain-link fence surrounding the existing Lomita Park Regulator Station will be reinstalled; however, the fence will be expanded approximately 10 feet west and 30 feet south to accommodate the expanded station footprint. PG&E will install a gate at the northwestern end of the station. Finally, the approximately 2.74-acre temporary construction area within the temporary exclusion fence will be restored to approximate pre-project conditions.

Dewatering

Groundwater is likely to be present within the two HDD excavation areas and station expansion area. To ensure that the work area is dry, water encountered during construction will be pumped into eight liquid storage tanks; four of the tanks will be located approximately 200 feet south of Lomita Park Regulator Station and four will be located approximately 200 feet south of the southern HDD excavation area. Water will pass through the liquid storage tanks, sediment will be trapped at the bottom, and water quality testing will be conducted. PG&E will discharge water at a POTW. A maximum of approximately 300 water tankers may be required to discharge water at a POTW.

Site Access, Road Modifications and Staging Area

The work areas will be accessed using six gates, three access routes, and a walking path. Two of the access roads, totaling 1.10 miles in length, contain ruts or potholes and will require repairs in order to make them serviceable. A 100-foot section of road will be realigned to the west of Lomita Station, and a new 60-foot long section of road will be built to provide access to the station following completion. An approximately 5.5-acre undeveloped generally barren/ruderal area owned by San Francisco International Airport located between Highline Canal and Millbrae Avenue will be used as a staging area for materials and equipment.

The roads that will be used and the necessary road improvements are described in further detail as follows:

- Lomita Park Regulator Station Rebuild, the northern HDD excavation area, and the pipe weld run-out area will be accessed using a road that extends 0.80 mile from Gate H (at 1st Avenue) in the north, and from a road that extends 0.30 mile from Gate G (at the intersection of Monterey Street and Madrone Street) in the south. Both of these roads will be bladed to provide an adequate surface for construction access, and 2-3 inches of compacted aggregate will be placed on them for final restoration. Neither of these roads will be expanded beyond its existing footprint. A two-track haul road that splits from the main road approximately 0.24 mile south of Gate H and merges with it again approximately 0.26 mile north of Gate G will be used to access the pipe weld run-out area and will not require modifications.
- To accommodate the station expansion, PG&E will realign approximately 100 feet of the existing eastern fork road approximately 10 feet to the west. To connect the eastern fork road to the station gate, PG&E will establish a new permanent approximately 60-foot-long access road.
- The southern HDD excavation area will be accessed using a road that extends from Gate E (at the intersection of Bay Street and Santa Paula Avenue) in the north to Gate B (near Aviador Avenue) in the south. The approximately 0.56-mile-long access road is in operable condition and no modifications to this road will be required.
- Minor tree trimming near Gate G will be conducted for vehicle clearance. Specifically, willow branches and herbaceous vegetation along approximately 1,600 feet of the access road will be trimmed to a width of 2 feet on each side of the road. Exclusion fencing will be installed along both sides of the road from Gate G to the north HDD work area.
- The existing Line 101 drip location will be accessed using a walking path located approximately 123 feet from an undesignated gate near the intersection of Madrone Street and Bay Street. Access to the staging area near Millbrae Avenue will be via Gate A along Aviador Avenue.

Personnel and Equipment

An average of approximately 20 crewmembers will be present on site each day during construction; however, the specific number of crewmembers will vary depending on the work activities. The construction equipment that is anticipated to be required is provided in Table 1.

Schedule

Pipeline replacement activities (including mobilization of equipment and materials, HDD construction work, pipe tie-in, and site grading and restoration) are anticipated to take approximately 10 weeks to complete. Lomita Park Regulator Station rebuild activities—including mobilization of equipment and materials, expansion work, pipe tie-in, and site grading and restoration—are anticipated to take approximately 15 weeks to complete. It is anticipated that work at the Lomita Park Station will begin August 2014 and continue through April 2015. HDD work is anticipated to begin April 2018 and continue through September 2018.

Work will generally occur 6 days per week from approximately 7:30 a.m. to 5:30 p.m.; however, some activities may occur outside of these hours. These activities will include pressure monitoring and venting/bleeding down at the end of the hydrostatic test. Extended work hours also will be required around the time of pipeline clearances, which are periods when the pipeline will be taken out of service. Activities associated with pipeline clearances may include welding, grinding, and the use of heavy equipment. Nighttime work is anticipated to be necessary for a maximum of 10 nights (not necessarily consecutive) and will be limited in extent and duration to the extent feasible.

Table 1. Construction equipment and quantity required to complete the proposed project

Equipment Type	Approximate Quantity
Trackhoes/backhoes	2
Welding rigs	4
Bulldozer	1
Water trucks	2
Dump truck trips	63
Pickup trucks	4
Air compressors/sand blasters	2
Generators	3
Xray/NDE truck	1
Grader	1
Drill rig	1
Power unit	1
Control cab/parts van	1
Fluid tanks (water and mud mixing and cleaning)	2–3
Pump (water and mud)	1
Fuel storage tank (1,300 gallons)	1
Vacuum trucks with booster pumps	2
5-ton haul trucks	2
Trailers	5
Bulk storage containers	2–3
Auxiliary equipment storage	2–3
Cranes	2
Sidebooms	5
Pipe support roller stands	52
Timber mats	24
Trackhoes	1
Liquid storage tanks	15
Tanker trucks	Up to 300 (trips)

Impacts to Habitat

Table 2 summarizes impacts to habitat for California red-legged frog and San Francisco garter snake. Other project related impacts will occur in developed areas that do not provide habitat for these species. These include existing graveled roads, a staging area on Aviador Avenue that is used regularly for materials storage by the airport, and a paved parking lot located on First Avenue.

Table 2. Summary of impacts to California red-legged frog and San Francisco garter snake habitat resulting from the Line 101 In-line Inspection and Upgrade and Lomita Park Station Rebuild Project

Location of Activities	Impacts to Upland Habitat		Impacts to Aquatic Habitat (Seasonal Wetlands)		Total Area (acres)
	Temporary Impacts (acres)	Permanent Impacts (acres)	Temporary Impacts (acres)	Permanent Impacts (acres)	
HDD Pipe Weld Run-Out Area	7.59	--	0.01	--	7.60
HDD Excavation / Tie-In (North), and Lomita Park Regulator Station Area	2.59	0.12	0.04	--	2.75
HDD Excavation / Tie-in (South)	1.12	--	0.04	--	1.16
Sniff Hole (Southern Excavation) Work Area	0.04	--	--	--	0.04
Liquid Storage Tanks (Southern Excavation)	0.06	--	--	--	0.06
Total Project Impacts to Habitat	**11.4**	**0.12**	**0.09**	**--**	**11.61**

Conservation Measures

The following measures will be implemented as part of the proposed project to avoid and/or minimize the risk of potential impacts to listed species and their habitats:

1. At least 15 days prior to the start of any project related activities PG&E will submit the names and credentials of biologists proposed to perform preconstruction surveys and monitoring to the Service for written approval. Only biologists approved by the Service (Service-approved biologists) will participate in the capture, handling, or relocation of listed species, and in the hand-excavation of rodent burrows and other potential underground retreats.
2. Prior to the start of construction a Service-approved biologist will conduct an environmental awareness training session for all construction personnel. The training will include a description and photographs of the California red-legged frog and San Francisco garter snake, a description of their habitats, the general measures that will be implemented to conserve these species as they relate to the project, penalties for non-compliance, and the limits of the work areas. Construction personnel will sign a log indicating that they have received this training. No work (including materials staging, fence installation, parking, excavation, driving or walking onsite, or any other action activity) will be performed by individuals who have not received this training.
3. A Service-approved biologist will be present at the site during all project activities. The biologist will have the authority to stop any action that might result in take of listed species or unanticipated impacts to their habitat, provided that it does not risk the safety of the construction crews or the public.
4. Prior to the start of work the Service-approved biologist will identify acceptable locations to which California red-legged frogs may be relocated if this species is encountered within a work area. Relocation areas will be a minimum of 500 feet from the boundary of any active work area, will contain adequate cover and nearby aquatic habitat, and will not include staging areas or roads.

5. Each morning prior to the start of work a Service-approved biologist will inspect the construction area, including staged materials and equipment, excavations, and fencing to ensure that no listed species or nesting birds are present.
6. No construction-related vehicles will enter the West-of-Bayshore property without having a Service-approved biologist present. The biologist will check the area in front of vehicles as they drive on the road to access the site to ensure that no San Francisco garter snakes or California red-legged frogs are present on the roadway. Motorized vehicles traveling within the site will not exceed 5 miles per hour.
7. Prior to moving, operators will check underneath under vehicles and equipment that have been parked onsite for more than 30 minutes and will notify the Service-approved biologist if any reptile or amphibian is observed.
8. Prior to the start of any ground disturbing activities within the Lomita Park Regulator Station work areas, the north and south HDD work areas, and the pipe run-out area, ground-level vegetation that may provide cover for California red-legged frogs and San Francisco garter snake will be removed. Ground-level vegetation also will be removed from within existing roads to be used and within three feet of the edges of these roads prior to any road improvement work. Immediately before vegetation removal a Service-approved biologist will visually survey the area. Vegetation will then be cut to a height of no less than 8 inches using hand tools (including weed whackers), and loose vegetation will be removed to increase visibility. The Service-approved biologist will then visually survey the area a second time to ensure that no listed species are present. The remaining vegetation will then be removed using hand tools.
9. Shrub and understory vegetation removal will be done using hand tools, including weed eaters and chain saws, to prevent adverse impacts from mowers, excavators, and other heavy equipment. A Service-approved biologist will be present during any vegetation removal. If vegetation is chipped onsite, the wood chips will be contained within a collection bin and will not be piled on the ground or spread onsite as ground cover. All vegetation cleared from the site will be loaded into containers and removed from the site the same day. No cleared vegetation will be stored onsite.
10. Following the removal of vegetation within the Lomita Park Regulator Station work areas, and the north and south HDD work areas, all rodent burrows, soil crevices, and other potential subterranean retreats will be inspected for the presence of California red-legged frogs and San Francisco garter snakes. After inspection, a Service-approved biologist will excavate burrows, soil crevices, and other potential subterranean retreats by hand to ensure that no California red-legged frogs or San Francisco garter snakes are present in the area. If a California red-legged frog or San Francisco garter snake is encountered during preconstruction surveys the protocol described under *Conservation Measure 19* will be followed.
11. Following the excavation of potential subterranean retreats, temporary wildlife exclusion fencing will be installed to completely enclose the Lomita Park Regulator Station work area, the north and south HDD work areas, the access road from G Gate to the north, the HDD work area, and the pipe weld run-out work area. The fencing, which can be made of wood, geotextile fabric, or other durable material, will be a minimum of three feet in height and will be buried at least six inches underground. Gates will be installed to allow vehicles to enter from access roads. These gates will be designed to form a seal with the ground that will prevent the entry of listed species into the work area. Gates will be kept closed to the extent practicable during construction, and will be closed at the end of each work day. Exit funnels will be installed where appropriate to allow small vertebrates to leave the work area unharmed. Once exclusion fencing is in place it will be maintained until all work within the enclosure has been completed. During construction activities the biological monitor will inspect the exclusion fencing each morning prior to the start of work, and again at the end of

each work day. Any damaged areas will be reported to PG&E and will be repaired immediately upon discovery. Wildlife exclusion fencing will be removed following project completion.

12. Preconstruction surveys, vegetation removal, and hand-excavation of burrows will take place prior to October 15 so that any San Francisco garter snakes present in the area can find a suitable alternative winter retreat prior to the onset of cold weather conditions. Once these activities are completed temporary wildlife exclusion fencing will be installed around the work area and will be maintained to prevent the re-entry of California red-legged frog and San Francisco garter snake. Between October 15 and March 31 ground disturbing work will only take place within work areas completely enclosed by wildlife exclusion fencing.
13. If ground disturbance within aquatic habitats is required while water is present, then cofferdams or other measures will be installed to allow for dewatering of the areas that will be subject to disturbance. Prior to dewatering, these areas will be visually surveyed for the presence of San Francisco garter snakes and California red-legged frog adults, egg masses, and tadpoles by a Service-approved biologist. If any California red-legged frog tadpoles or eggs are observed, the approved biologist will contact the Service to determine if moving any of these life-stages is appropriate. If a work site is to be temporarily dewatered by pumping, the area first will be surrounded by exclusion fencing. Intakes will be completely screened with wire mesh not larger than 0.2 inch to prevent California red-legged frogs from entering the pump system. Pumps used for dewatering will be placed within a sump or intake basin designed to exclude frogs; any auxiliary equipment will be placed within secondary containment and will be located at least 50 feet from any wetland or aquatic feature. Dewatering will not take place between December 1 and July 1 when egg masses and tadpoles have typically been observed in on-site aquatic habitats.
14. If any burrows or other potentially suitable underground refuges are found in the compacted areas adjacent to the access road, these features will be either flagged for avoidance, or excavated by a Service-approved biologist prior to the movement of equipment that may result in soil disturbance in the area.
15. The limits of the access roads will be staked and flagged or fenced to ensure that vehicle traffic is confined to designated areas.
16. Speed limit signs will be posted along the access roads and on the gate to the site.
17. Signs notifying all personnel of the potential presence of California red-legged frogs and San Francisco garter snakes on the access roads will be posted.
18. The total area of activity will be limited to the minimum necessary to achieve the goal of the project. All areas outside of the marked access roads and outside of designated work areas will be designated as environmentally sensitive, and no construction activities will take place within these areas.
19. If any San Francisco garter snakes are found within the work areas during project activities, the following protocol will be followed:
    a. Any construction in the area that could result in direct injury, disturbance, or harassment of the individual will cease.
    b. The foreman, the Service-approved biologist, and the PG&E biologist assigned to the project will be notified immediately.
    c. The animal will be allowed to move out of the area on its own volition as determined and monitored by the Service-approved biologist.

    If any California red-legged frogs are found within the work areas during project activities, the following protocol will be followed:
    a. Any construction in the area that could result in direct injury, disturbance, or harassment of the individual will cease.
    b. The foreman, the Service-approved biologist, and the PG&E biologist assigned to the project will be notified immediately.

c. If a California red-legged frog is found inside an exclusion fence or in another work area, the individual will be moved to a previously identified relocation area (see measure 4 above). Only Service-approved biologists will be allowed to handle, transport, and relocate California red-legged frogs.
d. The Service-approved biologist will monitor the translocated individual until it is determined that it is not imperiled by predators or other dangers.

20. During project activities all trash will be contained and removed from the site on a daily basis. All trash and construction-related debris will be removed from the work areas following the end of construction.
21. All steep-walled excavations more than one foot deep will be either covered at the end of each work day or equipped with one or more escape ramps positioned at no greater than a 45-degree angle so that wildlife does not become entrapped. All open excavations will be inspected for wildlife at the beginning of each day prior to the start of work. Excavations will be checked for the presence of listed species by the Service-approved biologist immediately prior to backfilling.
22. Work will be limited to daytime hours to the extent practicable. If nighttime construction cannot be avoided, night work will be limited to a maximum of 10 nights and will be limited in extent, duration, and brightness to the maximum extent feasible. Lighting will be faced downward and will only be utilized in the immediate workspace. A Service-approved biologist will be present during all construction activities including all night work.
23. All fueling and maintenance of vehicles and other equipment will occur at least 65 feet from any riparian habitat or water body. Prior to the start of construction, PG&E will develop a prompt and effective response plan to be implemented in the event of any accidental spills. All workers will be informed of the importance of preventing spill and the appropriate measures to take should a spill occur. Spill kits will be maintained onsite and will be immediately available in areas where refueling occurs.
24. Activities involving ground disturbance (i.e. excavation, grading and contouring) will be limited to periods of dry weather (less than 0.25 inch per 24-hour period and less than 40 percent chance of rain). Ground disturbance will not be initiated unless no precipitation is forecast within the project area. Construction activities will cease 24 hours prior to a 40 percent or greater forecast of rain from the National Weather Service. Construction may continue 24 hours after the rain ceases and there is no precipitation in the 24-hour forecast.
25. Erosion control materials will be used that do not pose an entrapment hazard to reptiles and amphibians. Plastic monofilament netting will not be used. Loosely-woven jute netting, fiber rolls, and similar natural materials are acceptable alternatives. Erosion control material will be removed after construction is complete and the worksite stabilized. Soils exposed by project operations will be mulched to prevent sediment runoff and transport. Mulches will be applied so that not less than 90 percent of the disturbed area is covered. All mulches, except hydromulch, will be applied in a layer not less than 2 inches deep. Where feasible, all mulches will be kneaded or tracked-in with track marks parallel to the contour, and tackified as necessary to prevent excessive movement. All exposed soils will be reseeded with a mix of native plants common to the area, free from seeds of noxious or invasive week species, and applied at a rate which will ensure establishment.
26. No pets from project personnel, firearms (other than firearms carried by authorized security personnel), or campfires will be allowed anywhere in the project area during construction.
27. Following the completion of project activities, areas subject to ground disturbance will be returned to approximately pre-project contours and will be restored in accordance with a Service-approved Revegetation Plan.
28. PG&E will provide the Service with a written (email is acceptable) implementation and compliance report prepared by a Service-approved biologist by the last calendar day of each

month during which project activities occur. The report will identify and describe the location and acreage of temporary and permanent effects to date, the location, method, and acreage of restoration activities conducted to date, and a summary of construction monitoring activities including results of preconstruction and daily clearance surveys, compliance inspections, and observations of listed species.

29. Effects to California red-legged frog and San Francisco garter snake resulting from project activities will be compensated for through a combination of (1) the development and implementation of a Service-approved off-site long-term management plan that will benefit the California red-legged frog and San Francisco garter snake outside adjacent to the West-of-Bayshore property in the vicinity of the project site (Millbrae conservation area) and (2) the development and implementation of a Service-approved off-site habitat enhancement and management plan that will benefit the California red-legged frog and San Francisco garter snake at a site near the Town of Pescadero in San Mateo County, California.
    a. The off-site long-term management plan at PG&E's 5.17-acre Millbrae conservation area (Figure 1) will include the preservation, restoration, enhancement, and management in perpetuity of 4.29 acres of upland habitat for the California red-legged frog and San Francisco garter snake under a conservation easement with a Service-approved long-term management plan with a fully funded non-wasting endowment to compensate for the effects of the proposed project (LSA Associates 2017). The Millbrae conservation area is contiguous with the southern portion of the West-of-Bayshore property in the City of Millbrae, San Mateo County, California. The ~~Wildlife Heritage Foundation will be the~~ conservation easement holder for the 5.17-acre Millbrae conservation area ***will be approved by the Service***. The long-term management plan will include the preservation, management, and enhancement of 5.17 acres of upland habitat for these species. The long-term management plan may include wetland design criteria (as applicable), proposed upland enhancement methods, mechanism for habitat preservation, a schedule for implementation, and criteria to measure the success of the restoration and enhancement activities. The long-term management plan shall be reviewed and approved by the Service in writing prior to the initiation of construction of the PG&E Line 101 In-line Inspection and Upgrade Project (estimated in April 2018). Funding for the long-term management plan will be provided by October 2018 and the conservation easement recorded by December 2018. Work within the HDD area will not begin until written approval of the long-term management plan is received from the Service (note: the long-term management plan will cover the entire 5.17-acre Millbrae conservation area but 0.88 acre will be dedicated to provide habitat compensation for the PG&E Line 132 Elbow Investigation Project (Service file number 08ESMF00-2015-F-0216-R002, Service 2017), 2.19 acres will be dedicated to the built portions of the Lomita Park Station Rebuild Project that were constructed in 2015, and the remaining 2.10 acres will be dedicated to provide partial compensatory mitigation for the portions of the PG&E Line 101 In-line Inspection and Upgrade Project yet to be built (Service file number 08ESMF00-2013-F-0430, Service 2014)).

Figure 1. Millbrae conservation area (copied from Figure 2 in LSA Associates (2017)).

b. The off-site habitat enhancement and management plan at POST's Butano Farms near the Town of Pescadero in San Mateo County, California (Figure 2), will include pond and upland habitat enhancement and management of approximately 65 acres for the San Francisco garter snake and California red-legged frog over a 30-year period (Figure 3) (San Mateo RCD 2018*a*); 7.43 acres of the habitat compensation at Butano Farms will be credited to the PG&E Line 101 In-line Inspection and Upgrade and Lomita Park Station Rebuild Project and the remaining 57.57 acres, if approved by the Service, may be credited toward other PG&E projects that will be covered by the PG&E Bay Area Operation and Maintenance Habitat Conservation Plan (ICF 2017). Proposed habitat enhancement actions at Butano Farms include enhancing the existing 1-acre pond and surrounding 65-acre upland complex through a suite of restoration actions aimed at enhancing both pond and upland habitat for the San Francisco garter snake and California red-legged frog. These actions could include: (a) reducing encroachment of woody vegetation into the pond through grading to increase the depth and total area of open water; (b) creating a shallow open bench and herbaceous species dominated transition area(s) between the open water and the adjacent uplands to support San Francisco garter snake foraging and California red-legged frog metamorphosis; (c) increasing the longevity of the enhanced pond through reducing upland erosion and sedimentation transport through a mix of drainage improvements, gully stabilization, and possibly creation of a sediment collection forebay upstream of the existing pond; and (d) restoring grassland habitat within the pond's watershed through removal and control of encroaching coyote brush, jubata grass, Douglas fir, and invasive species (San Mateo

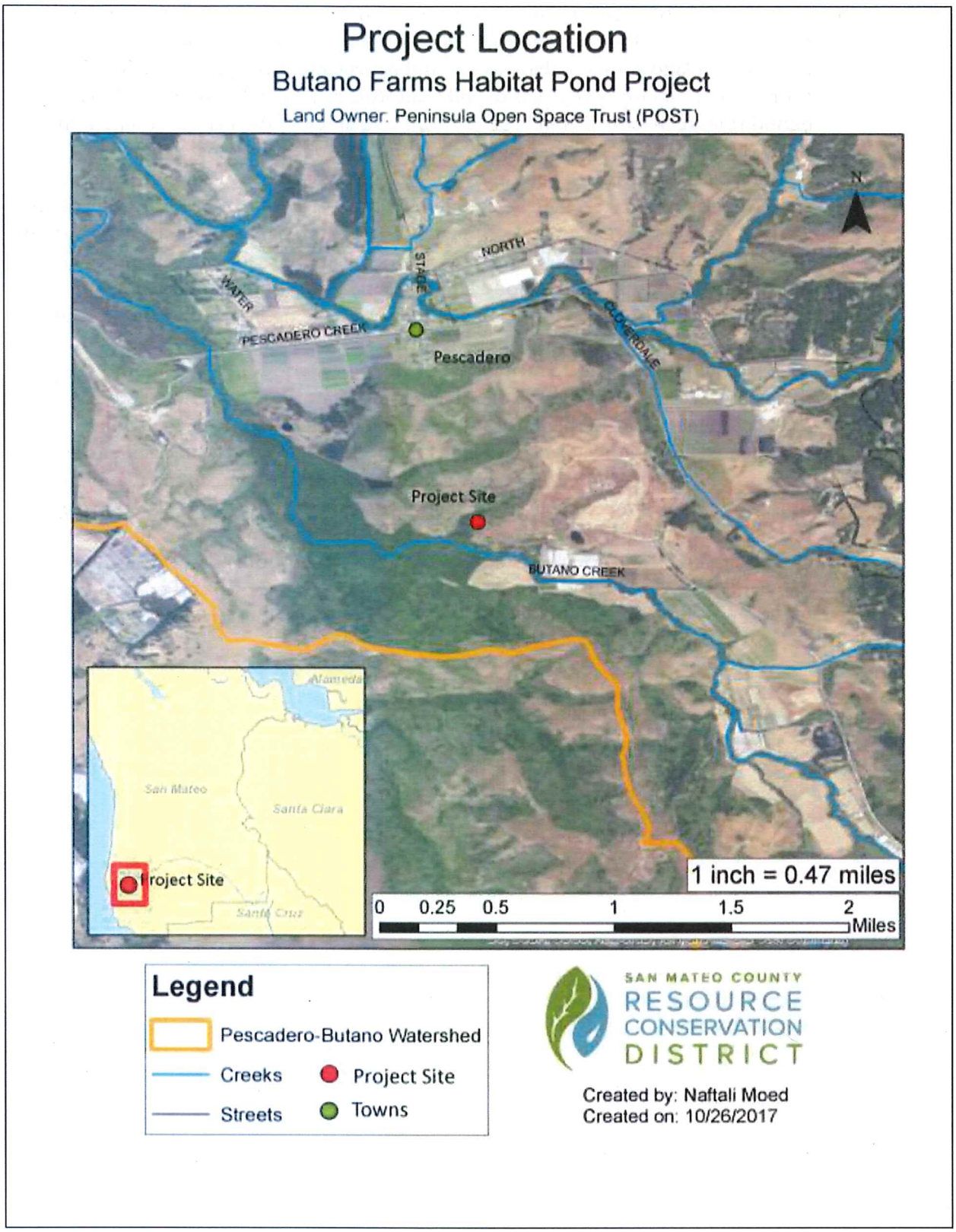


Figure 2. Location of the Butano Farms habitat enhancement area near the Town of Pescadero, San Mateo County (copied from Figure 1 in San Mateo RCD 2018***a***).

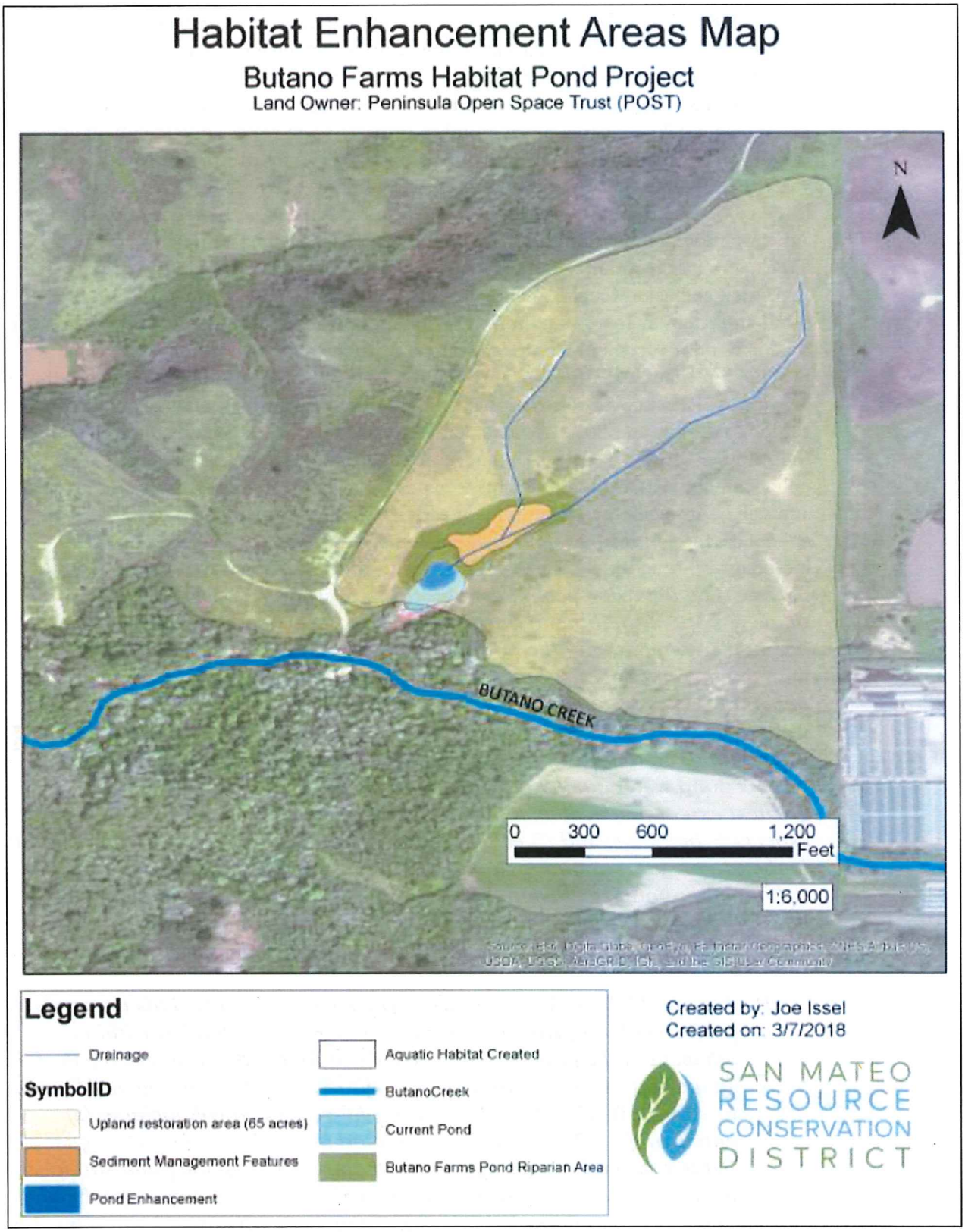


Figure 3. Map of the habitat enhancement features in the 65-acre habitat enhancement and management area at POST's Butano Farms near the Town of Pescadero, San Mateo County (copied from Figure 7 in San Mateo RCD 2018*a*).

RCD 2018*a*). The habitat enhancement project will improve and expand existing aquatic habitat within and adjacent to the pond to enhance habitat for the San Francisco garter snake and for the snake's food sources (e.g., Pacific tree frogs and California red-legged frogs). Work within the existing 1-acre pond will include enhancing a 0.25-acre area of the pond to provide open water aquatic habitat and expansion of the pond habitat on approximately 0.25 acre of riparian forest (mostly willows) to create shallow water habitat for Pacific tree frogs and California red-legged frogs. The southern portion of the pond is filled in with a dense mix of tules and cattails which help filter sediment from the drainage before entering Butano Creek, and it is recommended that this section remain relatively intact as-is. Livestock exclusion fencing will be installed to exclude cattle from a portion of the pond and riparian area to minimize erosion and preserve vegetation. The funding for the habitat enhancement and management at Butano Farms is anticipated to be provided in June 2018 after the agreement is approved by San Mateo RCD and the Service. Upland habitat restoration work and draining of the pond is expected to begin in late summer 2019. Aquatic habitat restoration work is expected to begin in the summer 2020. The 30-year management plan for the 65-acre habitat enhancement area at Butano Farms is expected to be approved in the summer 2018 and will be implemented beginning in early 2020. ~~The implementation of the habitat enhancement and restoration actions at Butano Farms is not covered under this biological opinion but will be covered under a future Section 7 consultation under the Act.~~ ***The following ecological objectives provide the basis for long-term management of the Butano Farms pond: (a) create and maintain shallow "bench" habitat around the northern and western sides of the pond margin with open emergent or submergent vegetation that allows sunlight to penetrate and warm the water; (b) maintain at least 25 percent cover of open water habitat in the pond; (c) maintain a 25-75 percent cover of emergent vegetation (i.e., tules, cattails, juncus, etc.) around the pond margins; (d) protect pond water quality (sediment, nutrients, and pathogens) to the greatest extent practicable; (e) control and eradicate invasive species, especially bullfrogs; and (f) establish and maintain appropriate upland habitat in the 61-acre area around the pond to provide upland forage and basking habitat and minimize erosion. The restoration and management activities to be conducted at the 65-acre Butano Farms restoration site are described in detail in San Mateo RCD (2018a, 2018b, and 2018c) and summarized below:***

1) ***Aquatic Habitat Work Summary (1.25 acre footprint): This restoration project will improve and expand existing aquatic habitat within and adjacent to the pond to enhance habitat for the San Francisco garter snake and its food sources (e.g., California red-legged frog and Pacific tree frog). Work within the existing 1.0-acre pond will include: (a) enhancing a 0.25-acre area of the pond to provide open water aquatic habitat through removing sediment and reshaping the pond surface to provide a deep-water section which will increase storage capacity and maintain open water habitat; (b) expansion of the pond habitat by lowering a 0.25-acre area of the riparian forest (mostly willows) along the northwest section of the pond to a depth of approximately 18 inches to provide shallow water habitat for California red-legged frogs and Pacific tree frogs; and (c) a 0.75-acre southern portion of the pond that is filled in with a dense mix of tules and cattails will remain***

relatively intact as-is to help filter sediment from the drainage before entering Butano Creek.

2) *Riparian Habitat Work Summary: This restoration project will transition 0.5 acre of riparian habitat adjacent to the pond feature to aquatic and grassland habitat to improve conditions for San Francisco garter snake food source production and access to the aquatic habitat. Sediment control structures will be installed in the 1.5-acre riparian area to be protected. Some riparian trees (mostly willows) will need to be removed to install the structures: (a) a 0.5-acre area of riparian habitat will be transitioned to grassland dominated habitat to improve access for San Francisco garter snake by removing riparian tree species around the west and northern areas of the pond; (b) check dams or berms constructed from material removed from the pond will be placed in the willowed area to the northeast of the pond to slow the flow of water moving through the floodplain and allow sediment to fall out prior to the water reaching the pond (the berms will function similarly to check dams and will ultimately build up the elevation of the floodplain area to increase the water table elevation and minimize future erosion in the gullies, some riparian tree species will need to be removed to install these structures); (c) livestock fencing will be installed to exclude livestock from a portion of the pond and riparian area to minimize erosion and preserve vegetation that provides structure for egg-laying, foraging, and sheltering habitat for California red-legged frogs and San Francisco garter snakes; and (d) livestock fencing will also be installed in the upland areas in order to manage grazing.*

3) *Upland Habitat Enhancement: This restoration project will enhance approximately 61 acres of upland grassland and scrubland habitat in the surrounding watershed of the pond to improve it to provide better San Francisco garter snake basking and breeding habitat. This work will additionally improve soil health, decrease erosion, and reduce the amount of sediment entering the pond. The specific areas will be selected from within the project area outlined in the site map (Figure 3) during the design process: (a) much of the upland area to be selected during the design process is currently dominated by shrubs (primarily coyote brush) which will be strategically removed at rates to be determined during the design process, and invasive trees and grasses will also be removed from these areas; (b) the addition of compost to the upland areas treated as described above will help improve soil health, encourage revegetation of deep rooting native grasses, and help minimize future erosion from these areas; (c) the woody material removed may be mulched and placed in the gullies to provide soil cover and help decrease erosion; (d) some revegetation and erosion control features may be undertaken in the gullies to further reduce sedimentation in the pond; and (e) all feasible steps will be taken to reduce potential for erosion in the upland areas treated that surround the gullies which might include slight modifications to the access road to the site, installation of waddles, targeted revegetation, and other efforts designed to preserve the longevity of the pond.*

4) *Maintenance and Monitoring: Prior to construction, photo monitoring of the pond and upland areas will be completed to establish a baseline condition. Regular, frequent monitoring will occur regularly during the initial phase of project implementation to ensure the project aligns with specifications established in designs, permit conditions, and address potential problems prior to completion of implementation. Following implementation of the pond improvements, biannual monitoring will be conducted in the spring and fall. Based off the results of these monitoring efforts, the project team will convene and determine whether sediment management, vegetation removal, or other actions are necessary in order for the project to continue meeting its established goals.*
5) *Herbicide Use: Herbicides represent an important tool in efforts to manage vegetation. In the context of the Butano Farms habitat enhancement work, they have been identified for potential use to control invasive plants in the upland portions of the project area (areas more than 60 feet away from any aquatic areas as defined in the best management practices below). The target species for potential herbicide application include coyote brush (Baccharis pilaris), jubata grass (Cortaderia jubata), and may include other species that are identified as the project moves forward with development. Herbicide is being considered for these species due to its minimal impacts on erosion, the economical efficacy of herbicide applications compared to other removal methods as well as the fact that it can often cause less disturbance to the area than mechanical removal. At this time the San Mateo RCD is not considering the use of herbicides to control willows (Salix ssp.), cattail (Typhaceae spp.), sedges (Scirpus ssp.), or rushes (Juncus ssp.) due to their proximity to sensitive aquatic habitat and will likely pursue mechanical or cultural measures for vegetation management in these areas. A strict riparian buffer will be observed, and herbicides will not be used near any aquatic areas as part of this habitat enhancement project. All herbicides utilized will be post emergent. The exact application rates, formulations, and methods will be determined by the San Mateo RCD in conjunction with the landowner and contractor and may be influenced by the size of the plants (whether or not they have already been mowed), weather, time of year, and other factors. When feasible, mechanical and cultural controls will be utilized in place of or in conjunction with herbicide.*
    i. *The following herbicides may be used to target coyote brush:*
        1. *Glyphosate, 10 percent rate, drizzle applicator at ~20 pounds per square inch (PSI) during the fall;*
        2. *Glyphosate, 100 percent rate, injected/applied to cut stumps during the fall;*
        3. *Glyphosate, 5 percent rate, foliar spray at ~30 PSI during the fall/spring;*
        4. *Imazapyr, 5 percent rate, foliar spray at ~30 PSI during the fall/spring;*
        5. *2,4-D, 5 percent rate, foliar spray at ~30 PSI during the fall/spring; and*

6. *Triclopyr, 5 percent rate, foliar spray at ~30 PSI during the fall/spring.*

ii. *The following herbicides may be used to target jubata grass:*

1. *Glyphosate, 2 percent rate, foliar spray at ~30 PSI during the summer/fall;*
2. *Glyphosate, 8 percent rate, low volume foliar spray at ~30 PSI during the fall;*
3. *Glyphosate, 33 percent rate, rope wick applicator during the summer/fall; and*
4. *Fluazifop, 4 percent rate, low volume foliar spray at ~30 PSI during the fall/spring.*

The following avoidance and minimization measures will be implemented during restoration and management activities at the Butano Farms habitat enhancement area (San Mateo RCD 2018b, 2018c):

1. *Within two days of the start of work on the pond, the pond will be sampled by a Service-approved biologist to ensure that all California red-legged frogs from that pond are in post-metamorphic stage and will be minimally affected by draining the pond. If the construction plans allow for existing open water and emergent vegetation areas to remain wetted and be isolated from construction activities, a Service-approved biologist will be on-site during draining of the work area to ensure that any remaining tadpoles or metamorphs are safely relocated to areas with standing water.*
2. *No more than 24 hours prior to conducting pond enhancement activities visual surveys shall be conducted by walking at least a 50-foot buffer area around the pond in an attempt to locate individual turtles, snakes, and frogs. A Service-approved biologist shall capture, transfer, and release in a safe area any turtles and frogs deemed to be in danger of being harmed by restoration activities. If a turtle, snake, or frog is located during the pre-treatment surveys but escapes capture, the area where the animals were lost shall be marked by a flag, and a 50-foot (15 meter) radius will be actively patrolled during the work. After the pre-construction survey, an avoidance strategy will be devised and presented to all individuals involved in pond enhancement prior to starting any activities. San Francisco garter snakes will not be removed or handled.*
3. *Draining of ponds to perform authorized work shall only occur during the part of the year when the tadpole life stage of the California red-legged frog has been completed and before the subsequent breeding season (i.e., between August 15 and November 1).*
4. *All biological monitors for the project shall be approved by the Service prior to commencement of project activities.*
5. *Service-approved biologists shall be on the project site while all project activities are being conducted including delineating access roads, vegetation removal, pond excavation, pond draining, and pond repair work.*
6. *Prior to project activities, a Service-approved biologist shall clearly mark/flag or erect temporary construction fencing to designate the work area and to delineate the areas that shall be avoided. Flagging and/or temporary construction fencing shall be removed immediately after the completion of construction work.*
7. *Dredge spoils shall be placed in a containment area away from the creek and allowed to disperse. The area where dredge spoils will be placed shall be surveyed for*

California red-legged frogs and San Francisco garter snakes. If burrows are present in this area, the biological monitor shall hand excavate burrows until the burrow terminates or until a maximum depth of 11.8 inches (30 centimeters). If San Francisco garter snakes are found, all work shall cease and the Service and CDFW shall be notified immediately.

8. *Any vehicle parked on site for more than 15 minutes shall be inspected by the Service-approved biologist before it is moved to ensure that California red-legged frogs and San Francisco garter snakes have not moved under the vehicle. Any parking areas shall be checked in advance by the Service-approved biologist.*
9. *If a California red-legged frog enters the work area, all work shall stop until the Service-approved biologist relocates the animal or it leaves on its own. Only the Service-approved biologist can handle and relocate California red-legged frogs. Any sightings and/or injuries of this species shall be immediately reported to the Service per instructions below.*
10. *Prior to the onset of any project-related activities, the Service-approved biologist must identify appropriate areas to receive California red-legged frog adults from the project areas. These areas must be in proximity to the capture site, contain suitable habitat, not be affected by project activities, and be free of exotic predatory species to the best of the Service-approved biologist's knowledge. Translocation shall only be performed by the Service-approved biologist.*
11. *Prior to and within 48 hours of the planned start of project activities, a focused survey for San Francisco garter snakes using an agency-approved protocol shall be conducted by a Service-approved biological monitor to determine if they are in the area. If a San Francisco garter snake is found, the Service shall be notified immediately to determine the correct course of action and project activities shall not begin until approved by the Service.*
12. *Prior to conducting non-native plant (e.g., jubata grass) removal or treatments (e.g., spraying with herbicide, cutting, pulling, digging out), the permittee shall make every reasonable attempt to ensure that California red-legged frogs and San Francisco garter snakes are not hidden within the plant or residual plant matter to be treated.*
13. *Activities that result in ground disturbance will occur May 1–October 30 (active season for the San Francisco garter snake). Vegetation will be cut to 3 inches in height. Once the ground is visible, a visual survey for the San Francisco garter snake will be conducted by the Service-approved biologist prior to additional ground disturbance. Field crews will install solid exclusion fencing if the work is in areas of known species presence. If work needs to occur during the inactive period (November 1– April 30) and is located in an area of known occupancy, the Service-approved biologist will flag and avoid any burrows by at least 10 feet wherever possible. If any burrows cannot be avoided by this distance, a Service-approved biologist will inspect following activities to determine whether or not the burrow has been collapsed. If a burrow is collapsed, the Service-approved biologist shall make efforts to open the burrow.*
14. *The Service-approved biologist shall walk directly in front of the vehicle or large equipment while utilizing the roads cleared for vehicle access to ensure San Francisco garter snakes are not in the road. If a San Francisco garter snake is found on the road, the Service-approved biologist shall tell the vehicle operator to stop, and the San Francisco garter snake shall be allowed to leave on its own volition.*

15. *The Service-approved biologists shall have the responsibility and authority of stopping the proposed project if any crews or personnel are not complying with the provisions outlined in this biological opinion.*
16. *Vehicular and equipment refueling will be prohibited within 100 feet from the edge of other wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, a secondary containment area will be constructed subject to review by the San Mateo RCD and/or Service-approved biologist. Spill prevention and cleanup equipment will be maintained in refueling areas.*
17. *Wetlands on-site shall be avoided to the maximum extent possible. Fencing shall be erected adjacent to the areas where construction is occurring to avoid unintended impacts to wetlands outside the work area.*
18. *Any excavation necessary shall be completed from outside of wetlands, where feasible, by using an excavator or backhoe tractor, thereby limiting the driving of heavy equipment across wetlands.*
19. *When possible, activities near streams, wetlands, or on saturated soils shall be conducted during the dry season (generally May 15–October 15) or during periods of minimum flow. If it is not possible to perform the work in the dry season, perform rainy season work during dry spells between rain events.*
20. *No debris, rubbish, creosote-treated wood, soil, silt, sand, cement, concrete, or washings thereof, or other construction related materials or wastes, oil or petroleum products or other organic or earthen material shall be allowed to enter into, or be placed where it may be washed by rainfall or runoff into waters of the State. Any of these materials placed within or where they may enter waters of the State by the applicant or any party working under contract, or with the permission of the applicant shall be removed immediately. When operations are completed, any excess material shall be removed from the work area and any areas adjacent to the work area where such material may be washed into waters of the State. During construction the contractor shall not dump any litter or construction debris within the riparian/stream zone. All such debris and waste shall be picked up daily and properly disposed of at an appropriate site.*
21. *A Worker Environmental Awareness Training shall be conducted for all construction crews and contractors by the Service-approved biological monitor. The education training shall be conducted prior to starting work on the project and upon the arrival of any new worker. The training shall include a brief review of special-status species, locations of sensitive areas, possible fines for violations, avoidance measures, and correction actions should sensitive species be encountered. The program shall cover the avoidance and minimization measures, environmental permits, and regulatory compliance requirements. Additional training shall be conducted as needed, including morning "tailgate" sessions to update crews as they advance into sensitive areas for projects with multiple work areas. In addition, a record of all personnel trained during the project shall be maintained for compliance verification.*
22. *To prevent the spread of invasive species, all equipment shall be washed prior to entering the property, with special attention on cleaning the undercarriage and wheels of the vehicles. In the event that high- or medium-priority noxious weeds are disturbed or removed during construction or construction-related activities, the contractor shall contain the plant material associated with the noxious weeds and dispose of it in a manner that will not promote the spread of the species. Areas where noxious weeds are disturbed or removed shall be immediately replanted with fast-growing native grasses or a native erosion control seed mixture.*

23. *The applicant shall revegetate all disturbed areas using native plant species and seed stock, as needed. Revegetation shall occur promptly upon completion of grading activities at each pond.*
24. *Plants selected for the restoration project shall be native riparian species that currently exist onsite or within the restoration project's watershed. Plant material will be obtained from a native plant nursery with Phytophthora best management practices in place, with emphasis on collection or propagation from local plant sources or be grown by the applicant from propagules collected from local watersheds.*
25. *Impacts to special-status plant species shall be avoided to the maximum extent possible. If avoidance is not feasible, impacts shall be minimized by implementing the following mitigation measures:*
    a. *Focused botanical surveys shall be conducted in April-June to determine if any special-status plant species are present with the project area.*
    b. *Timing of work activities within occupied habitat should occur after the bloom period of special-status plant species, to allow for maximum seed set and avoidance of direct mortality.*
    c. *Limit work areas with occupied habitat to the minimal area practical.*
    d. *If construction is to occur prior to the month of July, individual plants within the work areas that have the potential to be impacted should be enumerated, photographed, and conspicuously flagged to maximize avoidance, as well as to determine the total number of individuals affected. Timing of field surveys and flagging should correspond with the blooming period when this species is most conspicuous and easily recognizable, if feasible.*
    e. *Seed collection from individual plants with mature seed that are likely to be impacted should be conducted and properly stored for post-construction propagation and reestablishment. Perennial individuals that are likely to be impacted could be translocated by digging up plants and replanting in suitable habitat under the supervision of the project biologist.*
26. *If project construction is to begin during the migratory bird breeding season (between February 1 to August 31), a preconstruction survey for active nests shall be conducted within the project footprint and shall encompass adjacent habitats up to 300 feet from the project boundary. Surveys shall be conducted by a qualified biologist no more than two weeks prior to equipment or material staging, pruning/ grubbing or surface-disturbing activities. If no active nests are found within the survey area, no further mitigation is necessary. If active nests, i.e. nests with eggs or young present, are found within the survey area, non-disturbance buffers shall be established at a distance sufficient to minimize disturbance based on the nest location, topography, cover, species' tolerance to disturbance, and type/duration of potential disturbance. No work shall occur within the non-disturbance buffers until the young have fledged as determined by a qualified biologist.*
27. *Prior to and within 48 hours of the planned start of construction, a focused survey for western pond turtles shall be conducted by a CDFW-approved biological monitor to determine if they are in the area. If these species are found, the CDFW shall be notified immediately to determine the correct course of action, and construction activities shall not begin until approved by the CDFW. In the event a western pond turtle is found in the project area, the permittee shall exercise measures to avoid direct injury to them as well as avoid areas where they are observed to occur. If a western pond turtle is observed, it shall be left alone to move out of the area on its own. If it does not move on its own, it can be relocated by the biological monitor or*

the qualified biologist to at least 328 feet (100 meters) away from the project location to a suitable habitat.

28. *All staff and contractors will adhere to minimization measures to prevent the spread or introduction of amphibian diseases, such as chytrid, as suggested in "The Declining Amphibian Task Force Code of Practice" (https://www.fws.gov/ventura/docs/species/protocols/DAFTA.pdf).*
29. *The following herbicide use best management practices will be implemented:*
    a. *All pesticide use shall be implemented consistent with Pest Control Recommendations prepared annually by a licensed Pest Control Advisor.*
    b. *Applicators shall follow all pesticide label requirements and refer to all other best management practices regarding mandatory measures to protect sensitive resources and employee and public health during pesticide application.*
    c. *Pesticide applicators shall have or work under the direction of a person with a Qualified Applicator License or Qualified Applicator Certificate. Contractors and staff may apply approved herbicides after review and approval by the San Mateo RCD and under the direction of Qualified Applicator License/ Qualified Applicator Certificate field supervisors.*
    d. *All storage, loading, and mixing of herbicides shall be set back at least 300 feet from any aquatic feature or special-status species or their habitat or sensitive natural communities. All mixing and transferring shall occur within a contained area. Any transfer or mixing on the ground shall be within containment pans or over protective tarps.*
    e. *Appropriate non-toxic colorants or dyes shall be added to the herbicide mixture to determine treated areas and prevent over-spraying.*
    f. *Application Requirements - The following general application parameters shall be employed during herbicide application:*
        1) *Application shall cease when weather parameters exceed label specifications, when wind at site of application exceeds 7 miles per hour, or when precipitation (rain) occurs or is forecasted with greater than a 40 percent probability in the next 24-hour period to prevent sediment and herbicides from entering the water via surface runoff;*
        2) *Spray nozzles shall be configured to produce a relatively large droplet size;*
        3) *Low nozzle pressures (10-70 PSI) shall be observed during foliar applications;*
        4) *Spray nozzles shall be kept within 24 inches of vegetation during spraying;*
        5) *Drift avoidance measures shall be used to prevent drift in locations where target weeds and pests are in proximity to special-status species or their habitat. Such measures can consist of, but would not be limited to, the use of plastic shields around target weeds and pests and adjusting the spray nozzles of application equipment to limit the spray area.*
    g. *Notification of Pesticide Application – Signs shall be posted notifying the public, employees, and contractors of the San Mateo RCD's use of pesticides. The signs shall consist of the following information: signal word, product name, and manufacturer; active ingredient; U.S. Environmental Protection Agency registration number; target pest; preserve name; treatment location in preserve; date and time of application; date which notification sign may be*

removed; and contact person with telephone number. Signs shall generally be posted 24 hours before the start of treatment, and notification shall remain in place for 72 hours after treatment ceases. In no event shall a sign be in place longer than 14 days without dates being updated. See the Integrated Pest Management Guidance Manual for details on posting locations, posting for pesticide use in buildings and for exceptions.

h. *Disposal of Pesticides – Cleanup of all herbicide and adjuvant containers shall be triple rinsed with clean water at an approved site, and the rinsate shall be disposed of by placing it in the batch tank for application. Used containers shall be punctured on the top and bottom to render them unusable, unless said containers are part of a manufacturer's container recycling program, in which case the manufacturer's instructions shall be followed. Disposal of non-recyclable containers shall be at legal dumpsites. Equipment shall not be cleaned, and personnel shall not bathe in a manner that allows contaminated water to directly enter any body of water within the treatment areas or adjacent watersheds. Disposal of all pesticides shall follow label requirements and local waste disposal regulations.*

i. *All appropriate laws and regulations pertaining to the use of pesticides and safety standards for employees and the public, as governed by the U.S. Environmental Protection Agency, the California Department of Pesticide Regulation, and local jurisdictions shall be followed. All applications shall adhere to label directions for application rates and methods, storage, transportation, mixing, and container disposal. All contracted applicators shall be appropriately licensed by the state. San Mateo RCD staff shall coordinate with the County Agricultural Commissioners, and all required licenses and permits shall be obtained prior to pesticide application.*

j. *Sanitation and Prevention of Contamination - All personnel working in infested areas shall take appropriate precautions to not carry or spread weed seed or plant and soil diseases outside of the infested area. Such precautions will consist of, as necessary based on site conditions, cleaning of soil and plant materials from tools, equipment, shoes, clothing, or vehicles prior to entering or leaving the site.*

k. *All staff and contractors shall be properly trained to prevent spreading weeds and pests to other sites.*

l. *To minimize effects to California red-legged frogs during the breeding season (November – April), all herbicide use will primarily occur between August 15th to November 1st. Some target treatment of individual weeds may occur in April or May to increase long term treatment effectiveness and reduce the overall amount of chemical applied. A decision to spray in the spring time window would be made by San Mateo RCD staff.*

Action Area

The action area is defined in 50 CFR § 402.02, as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." For the proposed project, the action area encompasses the 11.61 acres of suitable habitat within the proposed project footprint at the 190-acre West-of Bayshore property. The action area also includes the 4.29 acres of California red-legged frog and San Francisco garter snake habitat at the 5.17-acre Millbrae conservation area (directly adjacent to the West-of-Bayshore property to the south) that will be preserved and managed in perpetuity for these listed species to compensate for the effects of the proposed project.

The action area also includes the ~~7.43 acres of California red-legged frog and San Francisco garter snake habitat at the~~ 65-acre Butano Farms habitat enhancement and management area near the Town of Pescadero that will be enhanced and managed over a 30-year period for ~~these listed species~~ ***the California red-legged frog and San Francisco garter snake*** ~~to compensate for the effects of the proposed project~~.

Analytical Framework for the Jeopardy Determination

Section 7(a)(2) of the Endangered Species Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. "Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

The jeopardy analysis in this biological opinion considers the effects of the proposed Federal action, and any cumulative effects, on the rangewide survival and recovery of the listed species. It relies on four components: (1) the *Status of the Species*, which describes the rangewide condition of the species, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which analyzes the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the species; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the species.

Status of the Species

California Red-legged Frog

Listing Status: The California red-legged frog was listed as a threatened species on May 23, 1996 (61 FR 25813) (Service 1996). Critical habitat was designated for this species on April 13, 2006 (71 FR 19244) (Service 2006) and revisions to the critical habitat designation were published on March 17, 2010 (75 FR 12816) (Service 2010). At this time, the Service recognized the taxonomic change from *Rana aurora draytonii* to *Rana draytonii* (Shaffer *et al.* 2010). A Recovery Plan was published for the California red-legged frog on September 12, 2002 (Service 2002).

Description: The California red-legged frog is the largest native frog in the western United States (Wright and Wright 1949), ranging from 1.5 to 5.1 inches in length (Stebbins 2003). The abdomen and hind legs of adults are largely red, while the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background color. Dorsal spots usually have light centers (Stebbins 2003), and dorsolateral folds are prominent on the back. Larvae (tadpoles) range from 0.6 to 3.1 inches in length, and the background color of the body is dark brown and yellow with darker spots (Storer 1925).

Distribution: The historic range of the California red-legged frog extended from the vicinity of Elk Creek in Mendocino County, California, along the coast inland to the vicinity of Redding in Shasta County, California, and southward to northwestern Baja California, Mexico (Fellers 2005; Jennings and Hayes 1985; Hayes and Krempels 1986). The species was historically documented in 46 counties but the taxa now remains in 238 streams or drainages within 23 counties, representing a loss of 70

percent of its former range (Service 2002). California red-legged frogs are still locally abundant within portions of the San Francisco Bay Area and the Central California Coast. Isolated populations have been documented in the Sierra Nevada, northern Coast, and northern Transverse Ranges. The species is believed to be extirpated from the southern Transverse and Peninsular ranges, but is still present in Baja California, Mexico (CDFW 2018).

Status and Natural History: California red-legged frogs predominately inhabit permanent water sources such as streams, lakes, marshes, natural and manmade ponds, and ephemeral drainages in valley bottoms and foothills up to 4,921 feet in elevation (Jennings and Hayes 1994, Bulger *et al.* 2003, Stebbins 2003). However, they also inhabit ephemeral creeks, drainages and ponds with minimal riparian and emergent vegetation. California red-legged frogs breed from November to April, although earlier breeding records have been reported in southern localities. Breeding generally occurs in still or slow-moving water often associated with emergent vegetation, such as cattails, tules or overhanging willows (Storer 1925, Hayes and Jennings 1988). Female frogs deposit egg masses on emergent vegetation so that the egg mass floats on or near the surface of the water (Hayes and Miyamoto 1984).

Habitat includes nearly any area within 1-2 miles of a breeding site that stays moist and cool through the summer including vegetated areas with coyote brush, California blackberry thickets, and root masses associated with willow and California bay trees (Fellers 2005). Sheltering habitat for California red-legged frogs potentially includes aquatic, riparian, and upland areas and includes any landscape feature that provides cover, such as animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris. Agricultural features such as drains, watering troughs, spring boxes, abandoned sheds, or hay stacks may also be used. Incised stream channels with portions narrower and depths greater than 18 inches also may provide important summer sheltering habitat. Accessibility to sheltering habitat is essential for the survival of California red-legged frogs within a watershed, and can be a factor limiting frog population numbers and survival.

California red-legged frogs do not have a distinct breeding migration (Fellers 2005). Adults are often associated with permanent bodies of water. Some individuals remain at breeding sites year-round, while others disperse to neighboring water features. Dispersal distances are typically less than 0.5-mile, with a few individuals moving up to 1-2 miles (Fellers 2005). Movements are typically along riparian corridors, but some individuals, especially on rainy nights, move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005).

In a study of California red-legged frog terrestrial activity in a mesic area of the Santa Cruz Mountains, Bulger *et al.* (2003) categorized terrestrial use as migratory and non-migratory. The latter occurred from one to several days and was associated with precipitation events. Migratory movements were characterized as the movement between aquatic sites and were most often associated with breeding activities. Bulger *et al.* (2003) reported that non-migrating frogs typically stayed within 200 feet of aquatic habitat 90 percent of the time and were most often associated with dense vegetative cover, i.e., California blackberry, poison oak and coyote brush. Dispersing frogs in northern Santa Cruz County traveled distances from 0.25-mile to more than 2 miles without apparent regard to topography, vegetation type, or riparian corridors (Bulger et al. 2003).

In a study of California red-legged frog terrestrial activity in a xeric environment in eastern Contra Costa County, Tatarian (2008) noted that a 57 percent majority of frogs fitted with radio transmitters in the Round Valley study area stayed at their breeding pools, whereas 43 percent moved into adjacent upland habitat or to other aquatic sites. This study reported a peak seasonal terrestrial

movement occurring in the fall months associated with the first 0.2-inch of precipitation and tapering off into spring. Upland movement activities ranged from 3 to 233 feet, averaging 80 feet, and were associated with a variety of refugia including grass thatch, crevices, cow hoof prints, ground squirrel burrows at the base of trees or rocks, logs, and under man-made structures; others were associated with upland sites lacking refugia (Tatarian 2008). The majority of terrestrial movements lasted from 1 to 4 days; however, one adult female was reported to remain in upland habitat for 50 days (Tatarian 2008). Upland refugia closer to aquatic sites were used more often and were more commonly associated with areas exhibiting higher object cover, e.g., woody debris, rocks, and vegetative cover. Subterranean cover was not significantly different between occupied upland habitat and non-occupied upland habitat.

California red-legged frogs are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). Egg masses containing 2,000 to 5,000 eggs are attached to vegetation below the surface and hatch after 6 to 14 days (Storer 1925, Jennings and Hayes 1994). In coastal lagoons, the most significant mortality factor in the pre-hatching stage is water salinity (Jennings *et al.* 1992). Eggs exposed to salinity levels greater than 4.5 parts per thousand resulted in 100 percent mortality (Jennings and Hayes 1990). Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis 3½ to 7 months following hatching and reach sexual maturity 2 to 3 years of age (Storer 1925; Wright and Wright 1949; Jennings and Hayes 1985, 1990, 1994). Of the various life stages, larvae probably experience the highest mortality rates, with less than 1 percent of eggs laid reaching metamorphosis (Jennings *et al.* 1992). California red-legged frogs may live 8 to 10 years (Jennings *et al.* 1992). Populations can fluctuate from year to year; favorable conditions allow the species to have extremely high rates of reproduction and thus produce large numbers of dispersing young and a concomitant increase in the number of occupied sites. In contrast, the animal may temporarily disappear from an area when conditions are stressful (e.g., during periods of drought, disease, etc.).

The diet of California red-legged frogs is highly variable; changing with the life history stage. The diet of the larval stage has been the least studied and is thought to be similar to that of other ranid frogs, which feed on algae, diatoms, and detritus (Fellers 2005; Kupferberg 1996a, 1996b, 1997). Hayes and Tennant (1985) analyzed the diets of California red-legged frogs from Cañada de la Gaviota in Santa Barbara County during the winter of 1981 and found invertebrates (comprising 42 taxa) to be the most common prey item consumed; however, they speculated that this was opportunistic and varied based on prey availability. They ascertained that larger frogs consumed larger prey and were recorded to have preyed on Pacific tree frog, three-spined stickleback and, to a limited extent, California mice, which were abundant at the study site (Hayes and Tennant 1985, Fellers 2005). Although larger vertebrate prey was consumed less frequently, it represented over half of the prey mass eaten by larger frogs suggesting that such prey may play an energetically important role in their diets (Hayes and Tennant 1985). Juvenile and subadult/adult frogs varied in their feeding activity periods; juveniles fed for longer periods throughout the day and night, while subadult/adults fed nocturnally (Hayes and Tennant 1985). Juveniles were significantly less successful at capturing prey and all life history stages exhibited poor prey discrimination, feeding on several inanimate objects that moved through their field of view (Hayes and Tennant 1985).

Recovery Plan: The Recovery Plan for the California red-legged frog identifies eight recovery units (Service 2002). The establishment of these recovery units is based on the determination that various regional areas of the species' range are essential to its survival and recovery. These recovery units are delineated by major watershed boundaries as defined by U.S. Geological Survey hydrologic units and the limits of its range. The goal of the recovery plan is to protect the long-term viability of all extant

populations within each recovery unit. Within each recovery unit, core areas have been delineated and represent contiguous areas of moderate to high California red-legged frog densities that are relatively free of exotic species such as bullfrogs. The goal of designating core areas is to protect metapopulations. Thus when combined with suitable dispersal habitat, will allow for the long term viability within existing populations. This management strategy identified within the Recovery Plan will allow for the recolonization of habitats within and adjacent to core areas that are naturally subjected to periodic localized extinctions, thus assuring the long-term survival and recovery of California red-legged frogs.

Threats: Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the California red-legged frog throughout its range. Several researchers in central California have noted the decline and eventual local disappearance of California and northern red-legged frogs in systems supporting bullfrogs (Jennings and Hayes 1990; Twedt 1993), red swamp crayfish, signal crayfish, and several species of warm water fish including sunfish, goldfish, common carp, and mosquitofish (Moyle 1976; Barry 1992; Hunt 1993; Fisher and Schaffer 1996). This has been attributed to predation, competition, and reproduction interference. Twedt (1993) documented bullfrog predation of juvenile northern red-legged frogs, and suggested that bullfrogs could prey on subadult California red-legged frogs as well. Bullfrogs may also have a competitive advantage over California red-legged frogs. For instance, bullfrogs are larger and possess more generalized food habits (Bury and Whelan 1984). In addition, bullfrogs have an extended breeding season (Storer 1933) during which an individual female can produce as many as 20,000 eggs (Emlen 1977). Furthermore, bullfrog larvae are unpalatable to predatory fish (Kruse and Francis 1977). Bullfrogs also interfere with California red-legged frog reproduction by eating adult male California red-legged frogs. Both California and northern red-legged frogs have been observed in amplexus (mounted on) with both male and female bullfrogs (Jennings and Hayes 1990; Twedt 1993; Jennings 1993). Thus bullfrogs are able to prey upon and out-compete California red-legged frogs, especially in sub-optimal habitat.

The urbanization of land within and adjacent to California red-legged frog habitat has also affected the threatened amphibian. These declines are attributed to channelization of riparian areas, enclosure of the channels by urban development that blocks dispersal, and the introduction of predatory fishes and bullfrogs. Diseases may also pose a significant threat, although the specific effects of disease on the California red-legged frog are not known. Pathogens are suspected of causing global amphibian declines (Davidson et al. 2003). Chytridiomycosis and ranaviruses are a potential threat because these diseases have been found to adversely affect other amphibians, including the listed species (Davidson et al. 2003; Lips et al. 2006). Mao *et al.* (1999 cited in Fellers 2005) reported northern red-legged frogs infected with an iridovirus, which was also presented in sympatric threespine sticklebacks in northwestern California. Non-native species, such as bullfrogs and non-native tiger salamanders that live within the range of the California red-legged frog have been identified as potential carriers of these diseases (Garner *et al.* 2006). Humans can facilitate the spread of disease by encouraging the further introduction of non-native carriers and by acting as carriers themselves (i.e., contaminated boots, waders or fishing equipment). Human activities can also introduce stress by other means, such as habitat fragmentation, that results in the listed species being more susceptible to the effects of disease.

Negative effects to wildlife populations from roads and pavement may extend some distance from the actual road. The phenomenon can result from vehicle-related mortality, habitat degradation, noise and light pollution, and invasive exotic species. Forman and Deblinger (1998) described the area affected as the "road effect" zone. One study along a 4-lane road in Massachusetts determined that this zone extended for an average of 980 feet to either side of the road for an average total zone

width of approximately 1,970 feet. However, in places they detected an effect greater than 0.6-mile from the road. The road effect zone can also be subtle. Van der Zandt *et al.* (1980) reported that lapwings and black-tailed godwits feeding at 1,575 to 6,560 feet from roads were disturbed by passing vehicles. The heart rate, metabolic rate and energy expenditure of female bighorn sheep increases near roads (MacArthur *et al.* 1979). Trombulak and Frissell (2000) described another type of "road-zone" effect due to contaminants. Heavy metal concentrations from vehicle exhaust were greatest within 66 feet of roads and elevated levels of metals in soil and plants were detected at 660 feet of roads. The "road-zone" varies with habitat type and traffic volume. Based on responses by birds, Forman (2000) estimated the road-zone along primary roads of 1,000 feet in woodlands, 1,197 feet in grasslands, and 2,657 feet in natural lands near urban areas. Along secondary roads with lower traffic volumes, the effect zone was 656 feet. The road-zone with regard to California red-legged frogs has not been adequately investigated.

The necessity of moving between multiple habitats and breeding ponds means that many amphibian species, such as the California red-legged frog are especially vulnerable to roads and well-used large paved areas in the landscape. Van Gelder (1973) and Cooke (1995) have examined the effect of roads on amphibians and found that because of their activity patterns, population structure, and preferred habitats, aquatic breeding amphibians are more vulnerable to traffic mortality than some other species. High-volume highways pose a nearly impenetrable barrier to amphibians and result in mortality to individual animals as well as significantly fragmenting habitat. Hels and Buchwald (2001) found that mortality rates for anurans on high traffic roads are higher than on low traffic roads. Vos and Chardon (1998) found a significant negative effect of road density on the occupation probability of ponds by the moor frog (*Rana arvalis*) in the Netherlands. In addition, incidences of very large numbers of road-killed frogs are well documented (Ashley and Robinson 1996), and studies have shown strong population level effects of traffic density (Carr and Fahrig 2001) and high traffic roads on these amphibians (Van Gelder 1973; Vos and Chardon 1998). Most studies regularly count road mortalities from slow moving vehicles (Hansen 1982; Rosen and Lowe 1994; Drews 1995; Mallick *et al.* 1998) or by foot (Munguira and Thomas 1992). These studies assume that every victim is observed, which may be true for large conspicuous mammals, but may be an incorrect assumption for small animals, such as the California red-legged frog. Amphibians appear especially vulnerable to traffic mortality because they readily attempt to cross roads, are small and slow-moving, and thus are not easily avoided by drivers (Carr and Fahrig 2001).

Metapopulation and Patch Dynamics: The direction and type of habitat used by dispersing animals is especially important in fragmented environments (Forys and Humphrey 1996). Models of habitat patch geometry predict that individual animals will exit patches at more "permeable" areas (Buechner 1987; Stamps *et al.* 1987). A landscape corridor may increase the patch-edge permeability by extending patch habitat (La Polla and Barrett 1993), and allow individuals to move from one patch to another. The geometric and habitat features that constitute a "corridor" must be determined from the perspective of the animal (Forys and Humphrey 1996).

Because their habitats have been fragmented, many endangered and threatened species exist as metapopulations (Verboom and Apeldom 1990; Verboom et al. 1991). A metapopulation is a collection of spatially discrete subpopulations that are connected by the dispersal movements of the individuals (Levins 1970; Hanski 1991). For metapopulations of listed species, a prerequisite to recovery is determining if unoccupied habitat patches are vacant due to the attributes of the habitat patch (food, cover, and patch area) or due to patch context (distance of the patch to other patches and distance of the patch to other features). Subpopulations on patches with higher quality food and cover are more likely to persist because they can support more individuals. Large populations have less of a chance of extinction due to stochastic events (Gilpin and Soule 1986). Similarly, small

patches will support fewer individuals, increasing the rate of extinction. Patches that are near occupied patches are more likely to be recolonized when local extinction occurs and may benefit from emigration of individuals via the "rescue" effect (Hanski 1982; Gotelli 1991; Holt 1993; Fahrig and Merriam 1985). For the metapopulation to persist, the rate of patches being colonized must exceed the rate of patches going extinct (Levins 1970). If some subpopulations go extinct regardless of patch context, recovery actions should be placed on patch attributes. Patches could be managed to increase the availability of food and/or cover.

Movements and dispersal corridors likely are critical to California red-legged frog population dynamics, particularly because the animals likely currently persist as metapopulations with disjunct population centers. Movement and dispersal corridors are important for alleviating over-crowding and intraspecific competition, and also they are important for facilitating the recolonization of areas where the animal has been extirpated. Movement between population centers maintains gene flow and reduced genetic isolation. Genetically isolated populations are at greater risk of deleterious genetic effects such as inbreeding, genetic drift, and founder effects. The survival of wildlife species in fragmented habitats may ultimately depend on their ability to move among patches to access necessary resources, retain genetic diversity, and maintain reproductive capacity within populations (Hilty and Merenlender 2004; Petit *et al.* 1995; Buza *et al.* 2000).

Most metapopulation or meta-population-like models of patchy populations do not directly include the effects of dispersal mortality on population dynamics (Hanski 1994; With and Crist 1995; Lindenmayer and Possingham 1996). Based on these models, it has become a widely held notion that more vagile species have a higher tolerance to habitat loss and fragmentation than less vagile species. But models that include dispersal mortality predict exactly the opposite: more vagile species should be more vulnerable to habitat loss and fragmentation because they are more susceptible to dispersal mortality (Fahrig 1998; Casagrandi and Gatto 1999). This prediction is supported by Gibbs (1998), who examined the presence-absence of five amphibian species across a gradient of habitat loss. He found that species with low dispersal rates are better able than more vagile species to persist in landscapes with low habitat cover. Gibbs (1998) postulated that the land between habitats serves as a demographic "drain" for many amphibians. Furthermore, Bonnet *et al.* (1999) found that snake species that frequently make long-distance movements have higher mortality rates than do sedentary species.

San Francisco Garter Snake

Listing Status: The San Francisco garter snake was listed as an endangered species on March 11, 1967 (Service 1967) and was listed as endangered by the State of California in 1971. A detailed species account can be found in the *San Francisco Garter Snake 5 -year Review: Summary and Evaluation* (Service 2006b). Critical habitat has not been proposed or designated for the species. The San Francisco garter snake is a fully protected species under California law. See California Fish and Game Code, Section 5050(b). A recovery plan was published for the San Francisco garter snake in 1985 (Service 1985).

Description: The San Francisco garter snake is a slender, colorful snake, with a burnt orange head, greenish-yellow dorsal stripe edged in black, bordered by a red stripe, which may be continuous or broken with black blotches, and then a black stripe. The belly color varies from greenish-blue to blue. The eyes are relatively large, and usually seven upper and ten lower labial scales are present. The body scales are in 19 rows and the dorsal scales are weakly to strongly keeled (Fox 1951). Large adults can reach 36 inches or more in length. Females give live birth from June through September,

with litters averaging 16 newborn (Stebbins 2003). The snakes are extremely shy, difficult to locate and capture, and quick to flee to water or cover when disturbed.

Distribution: Historically, San Francisco garter snakes occurred in scattered wetland areas on the San Francisco Peninsula from approximately the San Francisco County line south along the eastern and western bases of the Santa Cruz Mountains, at least to the Upper Crystal Springs Reservoir, and along the coast south to Año Nuevo Point, San Mateo County, and Waddell Creek, Santa Cruz County, California (Barry 1994; Service 1985). Currently, the species has been reduced to only six significant populations in San Mateo County and northern Santa Cruz County. These sites are Pescadero Marsh, Año Nuevo, the San Francisco State Fish and Game Refuge, San Francisco Airport/Millbrae, Sharp Park Golf Course at Laguna Salada, and Cascade Ranch. Each of these six locations is considered by the San Francisco Garter Snake Recovery Plan to be essential to the long-term survival of the species (Service 1985) and these locations are recognized as important to achieving recovery in the San Francisco garter snake 5-year review (Service 2006a). Of these sites Fox (1951) considered the Sharp Park population to be the purest morphological example of San Francisco garter snakes.

Status and Natural History: There are two significant components to San Francisco garter snake habitat: ponds that support California red-legged frogs and Pacific tree frogs *(Pseudacris regilla),* and surrounding upland habitat that supports burrowing mammals such as Botta's pocket gopher *(Thomomys bottae)* and California vole *(Microtus californicus).*The preferred habitat of the San Francisco garter snake is vegetated ponds with an open water component near open hillsides where they can sun themselves, feed, and find cover in rodent burrows (Larsen 1994). However, considerably less ideal habitats can be successfully occupied by the snakes, including ditches and waterways, where snakes are believed to pursue and prey on California red-legged frogs and Pacific tree frogs (McGinnis 1987). San Francisco garter snakes have also been observed in ponds surrounded by dense stands of California redwood with some open area for basking, dramatically differing from the upland and dispersal areas that were historically considered suitable for the species. This has led to unanswered questions regarding species behavior and movements in wooded areas and what role these ecosystems may play in the life history of the species.

San Francisco garter snakes also utilize temporary ponds and other seasonal freshwater bodies for foraging. They avoid brackish marsh areas because their preferred prey base is primarily comprised of California red-legged frogs and Pacific tree frogs. Emergent and bankside vegetation such as cattails, bulrushes, and spike rushes *(Juncus* spp. and *Eleocharis* spp.) are apparently preferred and used by the snake for cover. However, in the absence of these species, dense stands of coyote bush, pampas grass *(Cortaderia selloana),* or blackberry *(Rubus* spp.) may substitute as adequate cover (Barry 1994; Larsen 1994). The interface between stream and pond habitats and grasslands or bank sides is used for basking while nearby dense vegetation or water often provides escape cover. Barry (1994) noted that scattered, as opposed to dense brush was the preferred basking habitat for San Francisco garter snakes. San Francisco garter snakes also use floating algal or rush mats, if available. Sag ponds, small seasonal freshwater ponds formed along the San Andreas rift, historically supported this snake, but many of these habitats have been destroyed by urbanization and high intensity agriculture (Barry 1994). Barry (1994) reported that the San Francisco garter snake was abundant in the sag ponds that were eliminated by the construction of Skyline Boulevard.

San Francisco garter snakes forage extensively in aquatic habitats. In addition to California red-legged frogs, adults may also feed on juvenile bullfrogs, but they are unable to feed on larger adult bullfrogs (Barry 1994, 2005, undated). The elimination of aquatic habitat used by the anuran prey base of the San Francisco garter snakes, such as these sag ponds, negatively impacts the San

Francisco garter snakes by removing both its prey and suitable habitat (McGinnis 1987). Additionally, San Francisco garter snakes have been observed regurgitating bullfrogs in experiments performed by Larsen (1994). Thus, some experts believe that this species may not be a suitable prey item for San Francisco garter snakes in the wild. Adult San Francisco garter snakes are known to gorge on tadpoles of both the California red-legged frog and Pacific tree frog, when ponds dry prior to metamorphosis (McGinnis 1989). Newborn and juvenile San Francisco garter snakes depend heavily upon juvenile Pacific tree frogs as prey (Larsen 1994) and young San Francisco garter snakes may not survive if newly metamorphosed Pacific tree frogs are not available. Adult bullfrogs likely prey on smaller garter snakes, and may be an additional threat. However, there is debate about the level of adverse effect caused by this predation (Barry 2005). San Francisco garter snakes are one of the few animals capable of eating the toxic California newt *(Taricha torosa)* without suffering serious side effects. Although primarily diurnal, captive San Francisco garter snakes housed in an outside enclosure have been observed foraging after dark on warm evenings.

Adult San Francisco garter snakes sometimes aestivate in rodent burrows during summer months when the ponds are dry. On the coast, the snakes hibernate during the winter, but further inland, if the weather is suitable, snakes may be active year round. Female San Francisco garter snakes exhibit a high level of site fidelity (McGinnis 1989), particularly to burrows that are used for aestivation. Females can be found daily at the entrance to their burrow, and may travel to wetland areas once or twice a day. Larsen (1994) reported movements of up to 671 meters for one female and 632 meters for one male. Additionally, San Francisco garter snakes have been observed moving between 1.12 and 1.3 miles over several days during the warmer spring and fall months (Larsen 1994). Whorton et al. (1989) observed snake movement of 1.3 miles over 111 days at the West-of-Bayshore site, indicating that individuals may be highly mobile under some circumstances. The largest and longest garter snake migrations have been observed between March and May and again during the month of November (Whorton et al. 1989; Larsen 1994). Long distance movements of San Francisco may be attributed to the search for food as they follow dispersing prey and newly hatched tadpoles in wetlands throughout their range (Service 2006b).

Mating occurs during both the spring and fall, but principally during the first few warm days of March. Increased mating activity in spring is thought to be due to the increased likelihood of encountering a mate as individuals emerge from hibernacula and congregate near aquatic foraging areas. Increased movement may correspond with the mating and foraging during the spring and fall (Service 2006).

Threats: The recovery plan for the San Francisco garter snake identified several threats to the species including loss of habitat from agricultural, commercial and urban development, and collection by amateur herpetologists (Service 1985). The historical threats to the species remain, but there are now additional threats to the species, which include: (1) declining numbers of the threatened California red-legged frog; (2) the introduction of non-native bullfrogs which prey on both the San Francisco garter snake and California red-legged frog; (3) possible hybridization with other garter snake species; (4) removal of aquatic habitat for flood control; (5) seral succession of the remaining breeding habitat to the level that much of it has become unsuitable for the species; (6) vehicle strikes along roadways, (7) use of fertilizers and pesticides at golf courses adjacent to San Francisco garter snake habitat, and (8) rapid global climate change (IPCC 2007).

Recovery Plan: Because of past range contraction and loss of populations throughout their historic range, the San Francisco Garter Snake Recovery Plan (Service 1985) identifies 6 extant San Francisco garter snake populations that are essential for long-term survival including: Pescadero Marsh, Año Nuevo State Reserve, San Francisco State Fish and Game Refuge, San Francisco

Airport/Milbrae, Sharp Park Golf Course at Laguna Salada, and Cascade Ranch. An additional 4 populations must be established and protected to achieve delisting of the San Francisco garter snake. In addition to protecting and establishing populations, the recovery plan calls for additional research into the life history traits of San Francisco garter snakes so that recovery objectives and management plans can be adjusted. The five-year review additionally recommended that the species remain listed as endangered and also recommended that additional ponds and other habitats continue to be created or restored for the species (Service 2006a).

Environmental Baseline

The West-of-Bayshore property is a 190-acre parcel located in northern San Mateo County, west of San Francisco International Airport and east of the Caltrain right-of-way. The parcel is owned by the airport and the City and County of San Francisco. The property consists of a 2.4-mile-long strip of relatively undeveloped natural land completely surrounded by intense urban development. Topography within the property is generally flat with elevations less than 10 feet above mean sea level. Habitats on the property include freshwater wetlands, riparian, mixed trees (including eucalyptus, acacia, and willow), grassland, and ruderal areas.

Both the San Francisco garter snake and California red-legged frog are found within the mosaic channelized aquatic habitat, upland grasslands and seasonal wetlands on the property. Aquatic habitat on the property consists of two canals, a drainage ditch, and several seasonal wetlands. The two canals, South Lomita Canal and Cupid Row Canal, provide a means to divert water draining from the surrounding watershed into and around the West-of-Bayshore property so that it can be flushed into the San Francisco Bay. In addition to providing drainage and preventing flooding of the property, the two canals also provide a year round source of fresh water aquatic habitat for California red-legged frogs and San Francisco garter snakes.

In response to degradation of habitat on the property resulting from sediment deposition and overgrowth of non-native vegetation, the airport in cooperation with the Service, developed a Recovery Action Plan for the San Francisco Garter Snake for the West-of-Bayshore property (LSA Associates 2008). The plan includes recovery actions to be implemented on the property to improve the amount and quality of habitat for California red-legged frog and San Francisco garter snake. Recovery actions include creating channel openings in canals to increase open water habitat, removing sediment in on-site canals, improving canal alignments and widening canals in specific locations, and deepening and enhancing two on-site seasonal wetlands. The first phase of the Recovery Action Plan has been implemented. Habitat and population monitoring for California red-legged frog and San Francisco garter snake is ongoing.

Ongoing threats to California red-legged frogs and San Francisco garter snake in the action area include habitat modification, aquatic and upland habitat degradation; competition and predation by introduced species and/or feral animals; and mortality due to vehicle strikes. Aquatic habitat on the West-of-Bayshore property experiences degradation from sediment deposition during wet season storm events and from the overgrowth of non-native aquatic vegetation. These conditions reduce the amount of open water and relatively deep areas within the on-site aquatic habitat and may result in reduced hydroperiods of seasonal wetlands. Upland habitat on the site is threatened by the spread of invasive plant species including iceplant and pampas grass in uplands.

Millbrae Conservation Area

The 5.17-acre Millbrae conservation area (Figure 1) is located at PG&E's Millbrae Substation Property (contiguous with the southern portion of the 190-acre West-of-Bayshore property), west of San Francisco International Airport, south of Interstate 380, between U.S. Highway 101 and State Route 82 in San Mateo County. The Millbrae conservation area is located just above what was historically San Francisco Bay marshland. A total of 0.88 acre of the 5.17-acre Millbrae conservation area is dedicated as habitat compensation for the effects on the San Francisco garter snake and California red-legged frog of the PG&E Line 132 Elbow Investigation Project at six dig sites near San Andreas Lake in San Mateo County (Service file number 08ESMF00-2015-F-0216-R002, Service 2017).

When the Old Bayshore Highway (now South Airport Boulevard) was constructed in the 1940s, the roadway was built on a rubble berm through the tidal marsh, separating the compensation area from the tidal waters of San Francisco Bay. Later construction of U.S. Highway 101, Interstate 380, and San Bruno Avenue, along with the installation of tide gates on the nearby drainage canals, has fully eliminated tidal influence. In addition, the San Francisco International Airport and California Department of Transportation have historically placed fill on portions of the site between the 1920s and 1960s. During that period, portions of the site were also used for cattle grazing. The site has remained in essentially its present condition since 1970.

The Millbrae conservation area is currently fenced to the north, west and south, and is open to the West-of-Bayshore property, which is directly adjacent to the east. The West-of-Bayshore property itself is fenced, thus, the entire conservation area is not accessible to the public (LSA Associates 2017). Six electrical transmission and distribution lines cross the Millbrae conservation area (Figure 1). Ten utility poles associated with these utility lines are located within the Millbrae conservation area. A paved maintenance road divides the Millbrae conservation area into four discrete areas (Figure 1). The road is not part of the long-term management plan area (LSA Associates 2017).

The site is relatively level, ranging in elevation from approximately 10 feet in the lowest portions of the conservation area at its eastern side, to approximately 20 feet in the western portion of the site. The Millbrae conservation area consists of upland habitats and receives water from direct precipitation, potential runoff from adjacent residential areas in the cities of Millbrae and San Bruno, and potential runoff from the watershed that lies between these urban areas and the Crystal Springs area to the west. There are no streams or wetlands located on the Millbrae conservation area.

Adjacent land uses include a racket club directly adjacent to the north, the PG&E Millbrae Substation located to the southwest, residential areas to the northwest and southeast, and an undeveloped area to the northeast, which is included in the 190-acre West-of Bayshore property owned by the San Francisco International Airport and managed for the benefit of the San Francisco garter snake and California red-legged frog (LSA Associates 2008).

The Millbrae conservation area has the potential for the restoration of new aquatic habitat for San Francisco garter snake and California red-legged frog (LSA Associates 2017). Currently, options for creating new aquatic habitat are being evaluated. Aquatic habitat creation will be allowed so long as they benefit the conservation values of the Millbrae conservation area, as defined in the conservation easement. No enhancement or restoration of habitat will be allowed without prior approval by the Wildlife Heritage Foundation, CDFW, and the Service.

The Millbrae conservation area supports the following plant communities: non-native grassland, upland ornamental and horticultural, and native shrubs. Approximately half of the Millbrae conservation area consists of annual grassland, and the other half consists of an interspersed mosaic of grassland, upland ornamental and native shrubs. The non-native grassland is dominated by non-native grasses including wild oats, Italian rye grass, ripgut brome, soft chess, and Harding grass. Mixed in are (mainly non-native invasive) forbs, including poison hemlock, prickly lettuce, curly dock, prickly ox-tongue, field bindweed, sweet fennel, and Italian thistle. Upland ornamental and horticultural plant species are interspersed across the site, including pampas grass, Himalayan blackberry, English ivy, and a 4-foot wide strip of iceplant along the northern fenceline. This community includes a grove of planted or escaped trees along the center access road, including coast redwood, Monterey pine, and cypress. A small stand of stunted fruit trees are located in the western corner of the conservation area. The native shrubs community is dominated by many vigorous coyote shrub and toyon.

The Millbrae conservation area is within 300 feet of suitable aquatic habitat for the San Francisco garter snake and California red-legged frog on the adjacent West-of-Bayshore property. Both the San Francisco garter snake and California red-legged frog are known to occur on the adjacent West-of-Bayshore property, and two San Francisco garter snakes were observed in the Millbrae conservation area during trapping surveys in 2007 (Figure 1) (Swaim Biological, Inc. 2008). The adjacent West-of-Bayshore property is currently covered by the Recovery Action Plan for the San Francisco Garter Snake (LSA Associates 2008); however, the Millbrae conservation area is not part of the recovery action plan.

Butano Farms Habitat Enhancement Area

The proposed 65-acre Butano Farms habitat enhancement and management area is in the Butano Creek watershed near the Town of Pescadero in San Mateo County, California (Figures 2 and 3) (San Mateo RCD 2018***a***). Up to 57.57 acres of the 65-acre Butano Farms habitat enhancement area, if approved by the Service, may be credited as habitat compensation toward other PG&E projects that will be covered by the PG&E Bay Area Operation and Maintenance Habitat Conservation Plan (ICF 2017). The Butano Farms property is currently owned by POST, a 501(c)(3) nonprofit organization that protects and cares for open space, farms, and parkland. Current land use on the property primarily includes preserved open space and livestock grazing. The site contains an approximately 1-acre pond that is currently used by the cattle operation as a stock water source. The proposed Butano Farms habitat enhancement area is adjacent to the Butano Creek floodplain restoration site, a recently completed San Mateo RCD habitat enhancement project that reconnected 100 acres of historic floodplain to the Butano Creek channel (Service 2016).

Dense woody vegetation at the Butano Farms habitat enhancement area is rapidly encroaching on adjacent aquatic and upland habitat areas, shifting vegetation away from historic grassland and herbaceous wetland commonly used for movement, foraging, and breeding by San Francisco garter snake, California red-legged frog, and a suite of other native wetland and grassland dependent species. In addition to woody vegetation encroachment, upland erosion from gullies that drain into the pond is further reducing both aquatic habitat quantity and quality as well as facilitating additional encroachment by woody species (San Mateo RCD 2018***a, 2018b***).

California Red-legged Frog

The proposed project is located in the South San Francisco Bay Core Area of the South and East San Francisco Bay Recovery Unit for the California red-legged frog (Service 2002). This Recovery

Unit extends from the northernmost portion of Contra Costa County including a portion of San Joaquin County, south to Santa Clara County, and includes the eastern portion of San Mateo County, and all of San Francisco County. Within this Recovery Unit, California red-legged frogs appear to have been largely eliminated from the western lowland areas near urbanization. However, isolated populations occur in the East Bay foothills (between Interstate 580 and Interstate 680) and the species is abundant in several areas in eastern Alameda and Contra Costa counties. This Recovery Unit is essential to the survival and recovery of California red-legged frog, as it contains the largest number of occupied drainages in the northern portion of the species' range. The recovery plan lists the following conservation needs for the South San Francisco Bay Core Area: (1) protecting existing populations; (2) controlling non-native predators; (3) increasing connectivity between populations; (4) reducing erosion; (5) implementing guidelines for recreation activities to reduce impacts; (6) implementing forest practice guidelines; and (7) reducing impacts of urban development.

Surveys for California red-legged frogs have been conducted since 2008 as described in the West-of-Bayshore Recovery Action Plan (LSA Associates 2008). California red-legged frogs have been observed in most of the aquatic habitats on the West-of-Bayshore property during these surveys and also have been captured in the adjacent uplands in funnel traps intended for San Francisco garter snakes. The on-site canals contain relatively permanent water and are frequently used by California red-legged frogs for breeding. Depending on rainfall, seasonal wetlands on the property also provide breeding habitat.

Millbrae Conservation Area

While no aquatic breeding habitat for the California red-legged frog is located within the Millbrae conservation area, California red-legged frogs likely utilize the upland habitats and rodent burrows within the Millbrae conservation area for foraging, sheltering, aestivating, and dispersal due to the known occurrence of breeding California red-legged frogs in the contiguous West-of-Bayshore property.

Butano Farms Habitat Enhancement Area

The Butano Farms habitat enhancement and management area is located within the South San Francisco Bay Core Area and the Central Coast Recovery Unit for the California red-legged frog (Service 2002) and the SNM-2 designated critical habitat unit for the California red-legged frog (Service 2010). The 65-acre Butano Farms habitat enhancement area contains a 1-acre California red-legged frog breeding pond surrounded by a dense riparian forest. The remainder of the site is dominated by grassland and shrubland habitat with extensive gullying resulting in high sedimentation levels into the pond. ~~Several~~ ***Two*** California red-legged frog egg masses and ***several*** tadpoles were observed within the pond ***by the Service and San Mateo RCD staff*** during a site visit on February 28, 2018. However, the suitability of the pond for California red-legged frog breeding is being reduced by the encroachment of woody vegetation into the pond reducing the availability of sunny shallow water areas for California red-legged frog egg mass deposition and tadpole development. ***Over half of the pond is dominated by emergent wetland vegetation (e.g., tule, cattails, rushes) which reduces the availability of breeding habitat, but the pond does have areas of shallow water habitat and vegetation cover for California red-legged frog breeding and foraging (San Mateo RCD 2018b).*** High sedimentation levels into the pond are degrading the quality of aquatic habitat for the California red-legged frog by increasing turbidity levels and threatening the longevity of the pond (San Mateo RCD 2018***a***). The California Natural Diversity Database (CNDDB) reports the observation of two adult and four juvenile California red-

legged frogs within 0.25 mile of the Butano Farms habitat enhancement area during preconstruction surveys for the Butano Creek floodplain restoration project on August 4, 2016, but numerous bullfrogs were also observed (CNDDB occurrence number 1455, CDFW 2018). Based on the known recent observations of California red-legged frogs within and near the Butano Farms habitat enhancement area, the Service believes the California red-legged frog is highly likely to occur within all suitable aquatic and upland habitat at the Butano Farms habitat enhancement area.

San Francisco Garter Snake

The West-of-Bayshore property supports the Milbrae (San Francisco Airport) population of the San Francisco garter snake described in the San Francisco Garter Snake Recovery Plan and is one of the six populations considered essential to the long-term survival of the species (Service 1985).

San Francisco garter snakes have been observed throughout most areas on the West-of-Bayshore property and the property contains the largest recorded population of San Francisco garter snake in San Mateo County. Surveys for San Francisco garter snake conducted in 2007 and 2013 as described in the West-of-Bayshore Recovery Action Plan (LSA Associates 2008) detected San Francisco garter snakes in and around on-site wetlands as well as in upland areas. Based on 2007 survey results, 458 individuals were trapped and the total population was estimated to be 534 individuals (LSA Associates 2008). Based on 2013 survey results, it is estimated that the San Francisco garter snake population has remained stable.

Millbrae Conservation Area

Two San Francisco garter snakes were observed within the Millbrae conservation area (Figure 1) during trapping surveys in 2007 (Swaim Biological, Inc. 2008). Because of the close proximity to known San Francisco garter snake breeding habitat on the contiguous West-of-Bayshore property, the entire Millbrae conservation area is highly likely to be utilized by San Francisco garter snakes as upland habitat, as it provides hibernation sites (rodent burrows) and suitable vegetation cover consisting of shrub and grassland mix. However, the suitability of the grassland habitat for the San Francisco garter snake at the Millbrae conservation area could be degraded without proper control of invasive plant species and encroaching trees and shrubs. The Millbrae conservation area is located within the West-of-Bayshore significant population of the San Francisco garter snake (Service 1985).

Butano Farms Habitat Enhancement Area

The Butano Farms habitat enhancement and management area is located within the Pescadero Marsh significant population of the San Francisco garter snake and is one of the six populations considered essential to the long-term survival of the species (Service 1985). The encroachment of shrubs into grassland habitat at the Butano Farms habitat enhancement area is degrading the suitability of the upland areas as basking and dispersal habitat for the San Francisco garter snake. The encroachment of dense woody vegetation into and around the pond is degrading the quality of the aquatic habitat for the San Francisco garter snake by reducing the snake's accessibility to the pond, reducing the suitability of the pond for the snake's amphibian prey species such as the California red-legged frog, and reducing the availability of shallow water areas for San Francisco garter snake foraging. High sedimentation levels into the pond from extensive gullying is degrading the quality of the aquatic habitat in the pond for the San Francisco garter snake and its amphibian prey species by increasing turbidity levels and threatening the longevity of the pond (San Mateo RCD 2018***a, 2018b***). The CNDDB reports seven occurrences of the San Francisco garter snake within 0.3 – 1.5 miles of the Butano Farms habitat enhancement area (CNDDB occurrence numbers

12, 18, 20, 29, 33, 40, and 68; CDFW 2018). ***San Francisco garter snake individuals have been found both upstream and downstream of the Butano Farms habitat enhancement area, but none have been found within the project site. The project area provides suitable habitat for the San Francisco garter snake. The pond, although heavily vegetated, does provide prey food (e.g., California red-legged frog and Pacific tree frog) and some basking space. There is plenty of vegetative cover and rodent burrows in the surrounding area for San Francisco garter snake shelter (San Mateo RCD 2018b).*** Based on the multiple known occurrences of the San Francisco garter snake near the Butano Farms habitat enhancement area, the lack of barriers to dispersal from known occupied habitat, the availability of suitable (though degraded) upland and aquatic habitat for the San Francisco garter snake at the site, and the known occurrence of breeding California red-legged frogs, the snake's primary prey species, in the Butano Farms pond, the Service believes the San Francisco garter snake is likely to occur within the 65-acre Butano Farms habitat enhancement and management area.

Effects of the Action

California Red-legged Frog and San Francisco Garter Snake

The proposed project will result in temporary and permanent effects to habitat for California red-legged frog and San Francisco garter snake. This could result in individuals being directly and/or indirectly affected. The proposed project could (1) temporarily fragment and reduce the amount of habitat available to California red-legged frogs and San Francisco garter snakes in the area; (2) result in the injury and death of individual California red-legged frogs and San Francisco garter snakes; and (3) result in non-lethal harm and harassment of surviving individuals.

The proposed project will result in the permanent loss of 0.12 acre of upland habitat for California red-legged frog and San Francisco garter snake that will be developed by station expansion; an additional 11.4 acres of upland habitat and 0.09 acre of seasonal wetland will be temporarily disturbed by construction activities ***at the West-of-Bayshore property***. The area temporarily disturbed by construction will be restored and reseeded when work is complete.

The use of large and small construction equipment in work areas could disturb, collapse, or crush animal burrows resulting in injury or mortality to any California red-legged frogs or San Francisco garter snakes present. Use of heavy equipment in work areas and staging areas may result in individuals being crushed or hit and injured or killed. Noise and lighting associated with construction could result in increased disturbance potentially causing individuals in and near construction activities to vacate the area exposing them to greater risk of predation or vehicle strike. These effects will be minimized by conducting awareness training for employees, removing vegetation using hand tools prior to ground disturbance, installing temporary wildlife exclusion fencing around work areas and access roads, conducting preconstruction surveys for listed species, hand excavating burrows prior to ground disturbance, and having a Service-approved biologist present during all work-related activities to prevent injury to individuals.

Dewatering activities could result in injury or mortality to California red-legged frogs or San Francisco garter snakes if they become entrained or trapped in pumps used for dewatering the work area. In addition, project work could result in a temporary reduction in water quality. Hazardous substances from leaking equipment or uncured concrete could result in decreased water quality. Reduced water quality could result in mortality, reduced reproductive success, prey availability, and foraging success of California red-legged frogs and San Francisco garter snake. Contaminated equipment and workers could also introduce or spread nonnative invasive plant species, which

would diminish habitat quality. Implementing erosion control, restricting maintenance and fueling of vehicles and equipment to designated areas, having a Service-approved biologist present during all work, and properly screening pump intakes will minimize these effects.

Although preconstruction surveys and the presence of on-site biological monitors will reduce the likelihood of injury caused by ground disturbing activities within work areas, capturing and handling California red-legged frogs to remove them from a work area may result in the harassment, injury, or mortality of individuals. Stress, injury, and mortality may occur as a result of improper handling, containment, and transport of individuals. Death and injury of individuals could occur at the time of relocation or later in time subsequent to their release. Although survivorship for translocated California red-legged frogs has not been estimated, survivorship of translocated wildlife, in general, is lower because of intraspecific competition, lack of familiarity with the location of potential breeding, feeding, and sheltering habitats, and increased risk of predation. Improper handling, containment, or transport of individuals will be reduced or prevented by use of Service-approved biologists.

As noted previously in the Description of the Action section, the project proponent has also proposed a set of conservation measures, including the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to minimize the effect on the species of the proposed project's anticipated incidental take, resulting from the disturbance of habitat described above. The compensatory habitat proposed will be in the form of (1) the preservation and management of 4.29 acres of upland habitat for the California red-legged frog and San Francisco garter snake off-site at the Millbrae conservation area, and (2) the enhancement, preservation, and management of 7.43 acres of suitable habitat for the California red-legged frog and San Francisco garter snake off-site at Butano Farms near the Town of Pescadero. These compensatory habitat actions are further described below.

A total of 4.29 acres of upland habitat for the California red-legged frog and San Francisco garter snake will be preserved and managed off-site at the 5.17-acre Millbrae conservation area (Figure 1) within the South San Francisco Bay Core Area of the California red-legged frog and the West-of-Bayshore significant population of the San Francisco garter snake under a conservation easement with a Service-approved long-term management plan and a fully funded non-wasting endowment (LSA Associates 2017). The upland habitat preservation and management at the Millbrae conservation site will ensure the site continues to provide suitable upland dispersal, aestivation, foraging, and refugia habitat for the California red-legged frog and basking, dispersal, and hibernacula habitat for the San Francisco garter snake adjacent to known large breeding populations of these species on the adjacent West-of-Bayshore property.

The compensatory habitat proposed will also include the enhancement, preservation, and management of 7.43 acres of suitable habitat for the California red-legged frog and San Francisco garter snake off-site at Butano Farms near the Town of Pescadero (Figures 2 and 3) within the South San Francisco Bay Core Area of the California red-legged frog and the Pescadero Marsh significant population of the San Francisco garter snake under a Service-approved 30-year management plan with an endowment. The aquatic habitat enhancement actions at Butano Farms will benefit the California red-legged frog by enhancing the quality of the pond for California red-legged frog breeding and tadpole development and ensuring the longevity of the pond by reducing sedimentation levels into the pond. The aquatic and upland habitat enhancement actions and removal of encroaching woody vegetation at Butano Farms will benefit the San Francisco garter snake by enhancing the snake's accessibility to the pond, enhancing shallow water foraging habitat for the snake, enhancing aquatic habitat for the snake's amphibian prey species, ensuring the

longevity of the pond by reducing sedimentation levels into the pond, and enhancing upland basking and dispersal habitat for the snake through removal of encroaching woody vegetation.

These components of the action will have the effect of protecting and managing lands for these species' conservation in perpetuity. The compensatory lands will provide suitable habitat for breeding, feeding, or sheltering commensurate with or better than habitat lost as a result of the proposed project. Providing this compensatory habitat as part of a relatively large, contiguous block of conserved land may contribute to other recovery efforts for these species.

Effects of the Habitat Enhancement at Butano Farms

Restoration activities at the 65-acre Butano Farms habitat enhancement area will temporarily disturb up to 65 acres of suitable habitat for the California red-legged frog and San Francisco garter snake including a 1.0-acre pond that will be partially dredged. The disturbance of aquatic and upland habitat will temporarily remove habitat the California red-legged frog and San Francisco garter snake utilize for breeding, foraging, sheltering, and dispersal.

Due to the natural processes of siltation, vegetation encroachment, and detrital build-up, maintenance of open water habitats in ponds necessitates periodic management intervention. The importance of open water as escape habitat for California red-legged frogs and foraging habitat for San Francisco garter snakes is paramount. In order to reduce the frequency of pond management for open water, some open water section will be maintained at greater than 3 feet deep to provide appropriate habitat and slow vegetative encroachment and pond filling.

However, instead of proposing recurring pond dredging, the restoration plan proposes controlling pond sedimentation through construction of sediment control basins and implementing practices in upland areas to improve soil health and reduce erosion. Sediment catchment basins upstream of the pond will be designed to capture large sediment size particles (i.e., sand). In upland areas within the drainage area, soil management practices like prescribed grazing, composting and seeding or planting will help improve soil health and reduce erosion rates (San Mateo RCD 2018a). The focus on reducing sedimentation into the pond will benefit the California red-legged frog and San Francisco garter snake by increasing the longevity of the pond while eliminating the need for recurring pond dredging events that would continue to disturb California red-legged frogs and San Francisco garter snakes.

Although emergent vegetation is an important habitat component for California red-legged frogs and San Francisco garter snakes, too much emergent vegetation can become problematic. Lack of management can lead to the development of nearly impenetrable stands of tules, cattails, and bur-reed around the pond margin and accelerated filling in of the pond by accumulated detritus. Dense emergent vegetation can also encroach on other important pond habitat components such as shallow bench habitat and open water habitat and can ring the entire pond, making access and egress for California red-legged frogs, San Francisco garter snakes, and other native amphibian prey species difficult. Finally, high levels of emergent vegetation can lead to high levels of detritus, in turn leading to reduced levels of dissolved oxygen. Therefore, management of emergent vegetation must take into account issues of both too much and too little emergent vegetation. Livestock will be allowed to enter the pond area and will be controlled with fencing to provide long term

vegetation management. The management objective for vegetation cover is 25 percent to 50 percent of the entire pond area. Controlled livestock use will be implemented seasonally and spatially to control establishment of emergent vegetation (i.e., willows, cattails, etc.) along specific portions of the pond margins to strive for less than 50 percent vegetation cover in the entire pond.

Control of water quality concerns such as sediment loading, nutrient loading, and the introduction of pathogens are central to managing and maintaining a healthy pond ecosystem. Efforts will be made to protect pond water quality to the maximum extent practicable. Sediment loading accelerates loss of water depth and encroachment of emergent vegetation into open water and can cause California red-legged frog egg and tadpole mortality through asphyxiation and can disrupt California red-legged frog and San Francisco garter snake adult foraging. Nutrient loading can lead to increased vegetation growth, which in turn, can lead to "choking" of the pond and decreased availability of dissolved oxygen. Pathogens introduced by cattle and humans can be a problem for California red-legged frogs, San Francisco garter snakes, and their prey species. Although there are a number of water quality concerns (sediments, nutrients, and pathogens) emanating from a diverse array of sources (cattle, roads, agriculture, humans, etc.), most of these can be managed or minimized via a handful of multiple objective mechanisms. Key mechanisms for managing water quality include the creation of a series of berms to catch sediment prior to entering the pond, installation of exclusion fencing and upland restoration to decrease the activity of the gullies that drain into pond, and the completion of regular road maintenance. San Mateo RCD will minimize the potential for degradation of water quality during herbicide use by avoiding applying herbicides within 60 feet of aquatic habitat and when there is a 40 percent chance or greater for rain.

With regards to predators, bullfrogs and other non-native species present a major obstacle to recovery of California red-legged frogs and San Francisco garter snakes. Bullfrogs have both direct and indirect effects on California red-legged frog and San Francisco garter snake populations. Adult bullfrogs directly impact San Francisco garter snake populations via predation on small or juvenile San Francisco garter snakes (Service 1985). In addition, bullfrogs have an indirect impact by decimating California red-legged frogs, a key prey item for San Francisco garter snakes. Draining of the pond in the late summer or early fall can be effective for bullfrog control if the pond is isolated and draining can occur in two consecutive years. Draining must be completed such that no small pools that can be used as bullfrog tadpole refugia remain. If draining does not work, the most effective (and cost-effective) method for long-term control of bullfrogs is to manage aquatic systems for co-existence between bullfrogs and native species. This can be done by shifting the competitive balance away from bullfrogs and toward native species through eradication of nonnative fish, creation of complex habitats where micro-habitat segregation can occur, and managing for a high level of predaceous native macro-invertebrate production.

The habitat enhancement project at Butano Farms is designed to improve habitat conditions for California red-legged frogs by increasing shallow water bench habitat for tadpoles and metamorphs, improving access and foraging for adults, and increasing open water for predator refuge. These improvements will be accomplished by installing livestock fencing to control livestock access, reducing sediment loading into the pond, and increasing pond size. Work within the existing 1.0-acre pond will include 1) enhancing a 0.25-acre area of the pond to provide open water aquatic habitat, and 2) expansion of the pond habitat on approximately 0.25 acre of ripatian forest (mostly willows) to create shallow water habitat for

California red-legged frogs. This work will require draining the pond (completely or partially), removal of vegetation around the pond, and construction around and within the pond. There is a high probability that California red-legged frogs will be encountered during project activities. The potential for injuring or killing California red-legged frog egg masses and tadpoles during pond dewatering and excavation work will be avoided by delaying pond work until after August 15 when a Service-approved biologist has determined that all California red-legged frog tadpoles have metamorphosed. Construction, vegetation management, and drainage of the pond may temporarily disturb California red-legged frog individuals within the project area and temporarily disturb suitable aquatic and upland habitat for the California red-legged frog. There may be further indirect effects due to construction activities, noise, and vibration causing California red-legged frogs to leave the area, leaving them more susceptible to predation.

The habitat enhancement project at Butano Farms will include pre-construction surveys for the California red-legged frog. Avoidance measures will include: slow, late season draining of the pond; potential for leaving portions of the pond wetted and unimpacted by construction activities; installing fencing and/or silt fencing around areas of the pond that will be avoided; and construction monitoring by Service-approved biologists during construction to assist in adherence to avoidance and minimization measures. Other additional measures will be taken to avoid and minimize potential effects to California red-legged frogs during construction. A Service-approved biologist will relocate any California red-legged frogs out of the work area if they are in danger of being injured or killed.

Habitat enhancement activities at Butano Farms are specifically intended to improve long term habitat conditions for San Francisco garter snakes by enhancing habitat for prey species, improving pond access and basking space, and improving upland habitat. This habitat enhancement project will enhance more than 60 acres of upland grassland and scrubland in the surrounding watershed of the pond to provide better San Francisco garter snake basking and breeding habitat. This includes reducing the percent cover of shrubs and implementing actions to improve soil conditions. Riparian vegetation removal, mostly willows, will be done on 0.75 acre of riparian habitat adjacent to the pond to improve conditions for San Francisco garter snake food source production and access to the aquatic habitat. In addition, upland vegetation management (shrub removal, invasive species control, tree removal, etc.) will be conducted in an area of approximately 61 acres. These activities could also result in temporary disturbance of San Francisco garter snake habitat but will result in long term improvements. The most likely effect will be San Francisco garter snakes avoiding areas where habitat disturbance is occurring. The potential for injury and mortality of hibernating or sheltering San Francisco garter snakes will be avoided by limiting activities that could collapse burrows to the snake's active season. Service-approved biologists will be onsite during all initial construction, grubbing, and clearing. If a San Francisco garter snake is encountered, all work will stop until the snake has left the work area voluntarily. Other additional measures will be taken to avoid and minimize potential effects to San Francisco garter snakes during construction including having a biologist walk ahead of vehicles and heavy equipment to ensure no San Francisco garter snakes will be killed on roads or access pathways within the project area.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal

actions that are unrelated to the proposed Line 101 In-line Inspection and Upgrade and Lomita Park Station Rebuild Project, are not considered in this section; they require separate consultation pursuant to Section 7 of the Act. The Service is not aware of specific projects that might affect the California red-legged frog or San Francisco garter snake in the action area that are currently under review by State, county, or local authorities.

Activities that could negatively impact listed species in the action area could result from private actions that may occur without consultation with or authorization by the Service. These include contamination associated with urban and industrial runoff and unauthorized collection/poaching of San Francisco garter snakes or California red-legged frogs.

Conclusion

After reviewing the current status of the California red-legged frog and the San Francisco garter snake, the environmental baseline for the action area, and the effects of the proposed action, and the cumulative effects on these species, it is the Service's biological opinion that the proposed Line 101 In-line Inspection and Upgrade and Lomita Park Station Rebuild Project, as described herein, is not likely to jeopardize the continued existence of these species. We base this conclusion on the following: (1) the temporary nature of most project-related effects; (2) the variety of conservation measures that will be implemented to minimize the likelihood or potential for take of individual California red-legged frogs and San Francisco garter snakes; (3) the preservation and management in perpetuity of 4.29 acres of habitat for these species at the Millbrae conservation area within the South San Francisco Bay Core Area of the California red-legged frog and the West-of-Bayshore significant population of the San Francisco garter snake under a Service-approved long-term management plan with a non-wasting endowment; and (4) the enhancement, preservation, and management of 7.43 acres of suitable habitat for the California red-legged frog and San Francisco garter snake at Butano Farms near the Town of Pescadero within the South San Francisco Bay Core Area of the California red-legged frog and the Pescadero Marsh significant population of the San Francisco garter snake under a Service-approved 30-year management plan with an endowment.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act, provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Corps so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the terms

and conditions or (2) fails to require the (applicant) to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Applicant must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

Amount or Extent of Take

California Red-legged Frog

The Service anticipates that incidental take of the California red-legged frog will be difficult to detect because of their life history. Specifically, when California red-legged frogs are not in their breeding ponds, they may be difficult to locate due to their cryptic appearance and behavior; they may be located a distance from the breeding ponds; and the finding of an injured or dead individual is unlikely because of their relatively small body size. Losses of these species also may be difficult to quantify due to seasonal fluctuations in their numbers, random environmental events, changes in water regime at their breeding ponds, or additional environmental disturbances. Therefore, the Service anticipates that all California red-legged frogs inhabiting the 0.12 acre of upland habitat that will be permanently lost and the 11.4 acres of upland habitat and 0.09 acre of seasonal wetland that will be temporarily disturbed within the proposed project footprint at the West-of-Bayshore property will be subject to incidental take in the form of non-lethal harm, capture, and harassment. ***The Service anticipates that all life stages of the California red-legged frog inhabiting the 65 acres of habitat (including 1.0 acre of aquatic breeding habitat) disturbed at the Butano Farms habitat enhancement area will be subject to incidental take in the form of non-lethal harm and capture.*** In addition, the Service anticipates that no more than ~~two (2)~~ ***four (4)*** California red-legged frogs will be subject to incidental take in the form of death or injury as a result of construction-related activities. Upon implementation of the following Reasonable and Prudent Measures, incidental take of the California red-legged frog associated with the Line 101 In-line Inspection and Upgrade and Lomita Park Station Rebuild Project will become exempt from the prohibitions described under section 9 of the Act.

San Francisco Garter Snake

The Service anticipates that incidental take of the San Francisco garter snake will be difficult to detect because of their life history. Specifically, they may be difficult to locate due to their cryptic appearance and behavior and the finding of an injured or dead individual is unlikely because of their relatively small body size. Losses of this species also may be difficult to quantify due to seasonal fluctuations in their numbers, random environmental events, changes in water regime, or additional environmental disturbances. Therefore, the Service anticipates that all San Francisco garter snakes inhabiting the 0.12 acre of upland habitat that will be permanently lost and the 11.4 acres of upland habitat and 0.09 acre of seasonal wetland that will be temporarily disturbed within the proposed project footprint at the West-of-Bayshore property will be subject to incidental take in the form of non-lethal harm and harassment. ***The Service anticipates that all San Francisco garter snakes inhabiting the 65 acres of habitat disturbed at the Butano Farms habitat enhancement area will be subject to incidental take in the form of non-lethal harm.*** In addition, the Service anticipates that no more than one (1) San Francisco garter snake will be subject to incidental take in the form of death or injury as a result of construction-related activities. Upon implementation of the following Reasonable and Prudent Measures, incidental take of the San Francisco garter snake associated with the Line 101 In-line Inspection and Upgrade and Lomita Park Station Rebuild Project will become exempt from the prohibitions described under section 9 of the Act.

Effect of the Take

In the accompanying biological opinion, the Service determined that the level of anticipated take is not likely to result in jeopardy to the California red-legged frog and San Francisco garter snake.

Reasonable and Prudent Measures

The Service has determined that the following reasonable and prudent measure is necessary and appropriate to minimize impacts of incidental take of California red-legged frog and San Francisco garter snake:

1. PG&E shall fully implement the proposed project, including the Conservation Measures as described in this biological opinion.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Corps shall ensure compliance with the following terms and conditions, which implement the reasonable and prudent measure described above and outline required reporting/monitoring requirements. These Terms and Conditions are nondiscretionary.

The following Terms and Conditions implement the Reasonable and Prudent Measure:

1. If requested, PG&E shall ensure the Service, CDFW, or their authorized agents can examine the action area for compliance with the Project Description, Conservation Measures, and Terms and Conditions of this biological opinion before, during, or after project completion.
2. Any off-site preservation of habitat shall adhere to the Sacramento Fish and Wildlife Office Review Criteria for Section 7 Compensation revised January 30, 2014 (enclosed with this biological opinion) to ensure preservation and management of habitat in perpetuity.

Reporting Requirements

In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, the applicant shall adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, the Corps must reinitiate formal consultation as per 50 CFR 402.16.

1. The Service must be notified within one (1) working day of the finding of any injured or dead listed species or any unanticipated damage to its habitat associated with the proposed project. Notification will be made to the Coast Bay Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6623, and must include the date, time, and precise location of the individual/ incident clearly indicated on a U.S. Geological Survey 7.5 minute quadrangle or other maps at a finer scale, as requested by the Service, and any other pertinent information. When an injured or dead individual of the listed species is found, the Corps shall follow the steps outlined in the Disposition of Individuals Taken section below.
2. All sightings of federally listed species shall be reported to the CNDDB of the CDFW. A copy of the CNDDB reporting form shall be submitted to the Service.

3. The Corps shall ensure that annual monitoring reports are submitted to the Service on the status of the implementation of the habitat management actions at the Millbrae conservation area.
4. The Corps shall ensure that annual monitoring reports are submitted to the Service on the status of the implementation of the habitat enhancement and management actions at the Butano Farms habitat enhancement area.

Disposition of Individuals Taken

Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Dead individuals must be sealed in a resealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site, until instruction s are received from the Service regarding the disposition of the dead specimen. The Service contact persons are the Coast Bay Division Chief of the Endangered Species Program at the SFWO at (916) 414-6623.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1. The Corps should assist the Service with implementation of recovery actions identified by the Service in the Recovery Plans for the California red-legged frog and San Francisco garter snake.
2. The Corps should encourage or require the use of appropriate California native species in revegetation and habitat enhancement efforts.
3. The Corps should incorporate "environmentally friendly" erosion and stabilization techniques whenever possible in their projects.
4. Control bullfrogs, non-native tiger salamanders, and other invasive species within suitable breeding habitat for the California red-legged frog.
5. Control woody vegetation encroaching upon suitable grassland basking and dispersal habitat for the San Francisco garter snake.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION—CLOSING STATEMENT

This concludes formal consultation on the Line 101 In-line Inspection and Upgrade and Lomita Park Station Rebuild Project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in

this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any additional take will not be exempt from the prohibitions of section 9 of the Act, pending reinitiation.

If you have any questions regarding this response, please contact Joseph Terry (Joseph_Terry@fws.gov), Senior Fish and Wildlife Biologist, or Ryan Olah, Coast Bay Division Chief (Ryan_Olah@fws.gov) at the letterhead address or telephone (916) 943-6721 or (916) 414-6623.

Sincerely,

Jennifer M. Norris, Ph.D.
Field Supervisor

Enclosure

cc:
Randi Adair, California Department of Fish and Wildlife, Napa, California
Jeff Warshauer, Pacific Gas and Electric Company, San Ramon, California

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Sacramento Fish and Wildlife Office
Review Criteria for Section 7 Compensation
Revised January 30, 2014

Property Assurances and Conservation Easement

- ☐ Title Report [*preliminary at proposal, and Final Title Insurance at recordation*]; no older than six months;
- ☐ Property Assessment and Warranty;
- ☐ Subordination Agreement [*include if any outstanding debts or liens on the property; may be needed for existing easements*];
- ☐ Legal Description and Parcel Map;
- ☐ Conservation Easement [*use the current SFWO standardized CE template*]; or
- ☐ Non-Template Conservation Easement [*this requires additional review*]

Site Assessment and Development

- ☐ Phase I Environmental Site Assessment;
- ☐ Habitat Development Plan [*include if habitat will be constructed, restored, or enhanced*];
- ☐ Construction Security Analysis *[applicable if habitat is being constructed/enhanced/restored]*;
- ☐ Performance Security Analysis [*applicable if there are performance standards*];

Site Management

- ☐ Interim Management Plan;
- ☐ Interim Management Security Analysis and Schedule;
- ☐ Long-Term Management Plan;
- ☐ Endowment Fund Analysis and Schedule;
- ☐ Endowment Funding Agreement or Trust Agreement or Declaration of Trust [*DFW calls this a "mitigation agreement"*]

Guidelines

Real Estate Assurances and Conservation Easement (CE)

Title Report

1. Who holds fee title to property?
2. Exceptions to title. Are there any liens or encumbrances (existing debts, leases, or easements) on the property? Note that any existing exceptions to title will have priority over a conservation easement for the mitigation project.
    a. Review Preliminary Title Report to evaluate liens and encumbrances (see Property Assessment and Warranty, below).
    b. Could any of these exceptions to title potentially interfere with either biological habitat values or ownership? If existing easements can potentially interfere with the conservation values/habitat of the property, those portions of the land should be deducted from the total compensation acreage available on the site.
    c. Split estates. Have the water or mineral rights been severed from title? If so, property owner should be encouraged to re-acquire those rights, or at least to acquire the surface-entry rights to remove or limit access for mineral exploration/development.

Property Assessment and Warranty

1. Property owner should submit a Property Assessment and Warranty, which discusses every exception to title listed on the Preliminary Title Report and Final Title Insurance Policy, evaluating any potential impacts to the conservation values that could result from the exceptions to title (see below).
2. The Property Assessment and Warranty should include a summary and full explanation of all exceptions remaining on the title, with a statement that the owner/Grantor accepts responsibility for all lands being placed under the CE as available for the primary purposes of the easement, as stated in the easement, and assures that these lands have a free and clear title and are available to be placed under the CE.

Subordination Agreement

1. A Subordination Agreement is necessary if there is any outstanding debt on the property; it could also be used to subordinate liens or easements. Review Subordination Agreement language for adequacy—the lending bank or other lien or rights holder must agree to fully subordinate each lien, encumbrance, or easement under the CE.

Legal Description and Parcel Map

1. Ensure accuracy of map, and location and acreage protected under the CE.
2. Both the map and the legal description should explain the boundaries of the individual project compensation site. The site should *not* have 'leftover' areas for later use.
3. Ask for an easement map to be prepared (if applicable), showing all easements on the property.

Conservation Easement from Template

1. Who will hold the easement?
   a. Conservation easements require third-party oversight by a qualified non-profit or government agency (=easement holder or Grantee). Minimum qualifications for an easement holder include:
      i. Maintaining accreditation by the Land Trust Accreditation Commission http://www.landtrustaccreditation.org/home.
      ii. Organized under IRS 501(c)(3);
      iii. Qualified under CA Civil Code § 815;
      iv. Bylaws, Articles of Incorporation, and biographies of Boards of Directors on file at;
         1. Must meet requirements of SFWO, including 51% disinterested parties on the Board of Directors;
      v. Approved by SFWO
2. Project Applicant should submit a redline version showing all of their proposed revisions in track changes or other editable electronic format, along with an explanation of all deviations from the template.

Non-Template Conservation Easement

1. If not using the CE template, the Project Applicant should specify objections they have to the template. This may substantially delay processing as the non-template CE will require review by the Solicitor's Office. Alternate CEs are subject to SFWO approval prior to being granted and recorded.
2. The Project Applicant must either 1) add SFWO as a third-party beneficiary, or 2) add language throughout the document, in all appropriate places, that will assure SFWO the right to enforce, inspect, and approve any and all uses and/or changes under the CE prior to occurrence (including land use, biological management or ownership).
3. Include, at a minimum, language to:
   a. Reserve all mineral, air, and water rights under the CE as necessary to maintain and operate the site in perpetuity;
   b. Ensure all future development rights are forfeited;
   c. Ensure all prohibited uses contained in the CE template are addressed; and

d. Link the CE, Management Plan, and the Endowment Fund within the document (e.g., note that each exists to support the others, and where each of the documents can be located if a copy is required).

4. Insert necessary language, particularly, but not exclusively, per: (can compare to CE template):
   a. Rights of Grantee
   b. Grantee's Duties
   c. Reserved Rights
   d. Enforcement
   e. Remedies
   f. Access
   g. Costs and Liabilities
   h. Assignment and Transfer
   i. Merger
   j. Notices
5. Include a signature block for USFWS to sign "approved as to form".

Site Assessment and Development

Phase I Environmental Site Assessment

1. The Phase I ESA must show that the compensation site is not subject to any recognized environmental conditions as defined by the American Society for Testing and Materials (ASTM) Standard E1527-05 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, available at http://www.astm.org/Standards/E1527.htm, (i.e., the presence or likely presence of any Hazardous Substances or petroleum products).
2. If the Phase I ESA identifies any recognized environmental conditions, the Project Applicant must represent and warrant to the SFWO that all appropriate assessment, clean-up, remediation, or removal action has been completed.
3. If the Phase I ESA identifies any recognized environmental conditions, a Phase II ESA may be needed for sampling and laboratory analysis.

Restoration or Habitat Development Plan [*not required if the site is preservation only*]

1. The overall plan governing construction and habitat establishment activities required to be conducted on the Property, including, without limitation, creation, restoration, and enhancement of habitat.
   a. This plan should include the baseline conditions of the Property including biological resources, geographic location and features, topography, hydrology, vegetation, past, present, and adjacent land uses, species and habitats occurring on the property, a description of the activities and methodologies for creating, restoring, or enhancing habitat types, a map of the approved modifications, overall habitat establishment goals, objectives and Performance Standards, monitoring methodologies required to

evaluate and meet the Performance Standards, an approved schedule for reporting monitoring results, a discussion of possible remedial actions, and any other information deemed necessary by the SFWO.

2. Any permits and other authorizations needed to construct and maintain the site shall be included and in place prior to the start of construction of the habitat.
3. Full construction plans for any habitat construction are subject to SFWO approval and must be *SFWO-approved prior* to the start of construction of the habitat.

Construction Security

1. Construction Security in the amount of 100% of a reasonable third party estimate or contract to create, restore, or enhance habitats on the property in accordance with the Restoration or Habitat Development Plan.
2. Construction Security can be drawn on should the project proponent default.
3. The Construction Security should be in the form of an irrevocable standby letter of credit or a cashier's check.
   a. LOC: issued for a period of at least one year, and provide that the expiration date will be automatically extended for at least one year on each successive expiration date unless, until extension is no longer necessary.
   b. Beneficiary: a third party subject to approval by the SFWO.
   c. Language in a draft letter of credit subject to approval by the SFWO.

Performance Security *[only necessary if habitat if performance standards have been identified]*

1. Performance Security in the amount of 20% of the Construction Security.
2. Performance Security can be drawn on should the Performance Standards not be met, if remedial action becomes necessary.
3. The Performance Security in the form of an irrevocable standby letter of credit or a cashier's check.
   a. LOC: issued for a period of at least one year, and provide that the expiration date will be automatically extended for at least one year on each successive expiration date unless, until extension is no longer necessary.
   b. Beneficiary: a third party who is subject to approval by the SFWO.
   c. Language in a draft letter of credit is subject to SFWO approval.

Site Management

Interim Management Plan

1. The Interim Management Plan should identify the short-term management, monitoring, and reporting activities to be conducted from the time construction ends until the Endowment Fund has been fully funded for three

years and all the Performance Standards in the Development Plan have been met. This may be the same as the Long-term Management Plan.

Interim Management Security Analysis and Schedule

The purpose of the Interim Management Security is to allow the endowment to grow for at least three years without any disbursements, and is a safeguard to ensure that there will be enough funds in the endowment to pay for future management costs. The period can be longer than three years; a 5 year period is recommended by many land trusts.

1. Interim Management Security (in the form of a standby letter of credit) in the amount equal to the estimated cost to implement the Interim Management Plan during the first three years of the Interim Management Period, as set for in the Interim Management Security Analysis and Schedule.
2. The Interim Management Security Analysis and Schedule should be in the form of a table and/or spreadsheet that shows all of the tasks (management, monitoring, reporting), task descriptions, labor (hours), cost per unit, cost frequency, timing or scheduling of the tasks, the total annual funding necessary for each task, and any associated assumptions for each task required by the Interim Management Plan. The total annual expenses should include administration and contingency costs.
3. The Interim Management Security:
   a. Held by a qualified, non-profit organization or government agency, subject to SFWO approval [see requirements under CE above], and
   b. Held according to minimum standards for assuring maximum success in earning potential, and will include assurances to safeguard against loss of principle.
   c. Instructions for disbursements or releases from the fund must be outlined in the Endowment Management Agreement/Trust Agreement/Declaration of Trust.

Long-Term Management Plan (LTMP)

1. The LTMP template identifies the long-term management, monitoring and reporting activities to be conducted.
2. The LTMP should include at minimum:
   a. Purpose of the Project and purpose of the LTMP;
   b. A baseline description of the setting, location, history, and types of land use activities, geology, soils, climate, hydrology, habitats present (once project meets Performance Standards), and species descriptions;
   c. Overall management, maintenance and monitoring goals; specific tasks and timing of implementation; and discussion of any constraints, which may affect goals;
   d. The Endowment Fund Analysis and Schedule (see below);

e. Discussion of Adaptive Management actions for reasonably foreseeable events and possible thresholds for evaluating and implementing Adaptive Management;
f. Rights of access to the Property and prohibited uses of the Property as provided in the CE; and
g. Procedures for Property transfer, land manager replacement, amendments, and notices.

3. The LTMP must be incorporated by reference in the CE.
4. The LTMP is considered a living document and may be revised as necessary upon agreement of the land manager, easement holder, and SFWO.

Endowment Fund Analysis and Schedule

1. Can use a PAR or PAR-like analysis and must be based upon the final LTMP, subject to SFWO approval.
   - The analysis should be developed with input by the land manager and conservation easement holder.
2. The analysis and schedule should be in the form of a table and/or spreadsheet that shows, at a minimum:
   - all of the tasks (management, monitoring, reporting)
   - task descriptions, with tasks numbers cross-referenced in management plan(s)
   - labor (hours)
   - materials
   - cost per unit (hr., linear ft., each, etc.).
   - cost frequency
   - timing or scheduling of the tasks,
   - the total annual funding necessary for each task, and
   - the assumptions required for each task by the Management Plan.
3. The total annual expenses should include administration and contingency costs (contingency can be included on each line item – identify the percentage). Unless there is a separate endowment for the purpose of monitoring and reporting on the CE conditions, then, the analysis should also include costs of
   - Monitoring and reporting CE conditions;
   - Defending the CE; and
   - Liability insurance.
4. The Endowment Fund::
   - Held by a qualified, SFWO-approved, non-profit organization or government agency [see requirements under CE above],
   - Held according to minimum standards for assuring maximum success in earning potential, and should include assurances for no loss of principle.
   - Disbursements or releases from the fund must be for documented expenditures, as they occur.

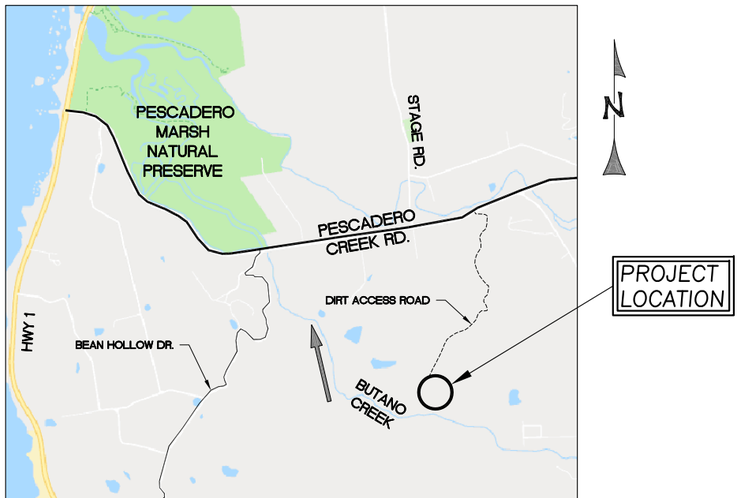
Endowment Funding Agreement

1. This is the agreement between the endowment holder and the Project Applicant, as to how the endowment is to be funded, held and disbursed;
2. USFWS is not signatory to this agreement, but there should be a signature block on the agreement for SFWO to sign "approved as to form";
3. USFWS has approval authority over the language in the document, and it must state that modifications or transfer of the endowment to another holder are subject to USFWS approval;
4. This agreement can also be called: "Trust Agreement", "Declaration of Trust"
5. When the CA Dept. of Fish and Wildlife is involved, this is called "Mitigation Agreement".

EXHIBIT I
65% Designs (Aquatic)

BUTANO POND MITIGATION PROJECT

65% DESIGN SUBMITTAL



VICINITY MAP

N.T.S. (GOOGLE)

REGIONAL MAP

N.T.S. (GOOGLE)

GENERAL NOTES

1. TOPOGRAPHIC MAPPING WAS PERFORMED BY:
   WATERWAYS CONSULTING, INC.
   509A SWIFT STREET
   SANTA CRUZ, CA 95060
   SURVEY DATES: OCTOBER 30, 2018
   OCTOBER 31, 2018
   NOVEMBER 1, 2018
   NOVEMBER 27, 2018
2. ELEVATION DATUM: GPS TIES TO NAVD88 USING THE LEICA GEOSYSTEMS SMARTNET GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) NETWORK.
3. BASIS OF BEARINGS: GPS TIES TO NAD83 CALIFORNIA STATE PLANE, ZONE 3 USING THE LEICA GEOSYSTEMS SMARTNET GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) NETWORK.
4. CONTOUR INTERVAL IS ONE FOOT. ELEVATIONS AND DISTANCES SHOWN ARE IN DECIMAL FEET.
5. THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES ARE NOT SHOWN HEREON.
6. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE 2018 EDITION OF THE STATE OF CALIFORNIA STANDARD SPECIFICATIONS, ISSUED BY THE DEPARTMENT OF TRANSPORTATION (HEREAFTER REFERRED TO AS "STANDARD SPECIFICATIONS").
7. THESE DESIGNS ARE INCOMPLETE WITHOUT THE FINAL STAMPED TECHNICAL SPECIFICATIONS PREPARED BY WATERWAYS CONSULTING, INC. REFER TO TECHNICAL SPECIFICATIONS FOR DETAILS NOT SHOWN HEREON.

ABBREVIATIONS

AVG.	AVERAGE
CC	CONCRETE
CY	CUBIC YARDS
DIA.	DIAMETER
E	EXISTING
EG	EXISTING GROUND
ELEV.	ELEVATION
FG	FINISHED GRADE
FT	FEET
INV	INVERT
MIN	MINIMUM
N	NEW
NIC	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
RC	RELATIVE COMPACTION
RSP	ROCK SLOPE PROTECTION
SFGS	SAN FRANCISCO GARTER SNAKE
SPK	SPIKE
SQ.FT.	SQUARE FOOT
T	TREE
T.B.D.	TO BE DETERMINED
TYP	TYPICAL
UNK	UNKNOWN
WSE	WATER SURFACE ELEVATION
YR	YEAR

TREE SPECIES

O	OAK
R	REDWOOD
T	TREE (SPECIES UNKNOWN)
W	WILLOW

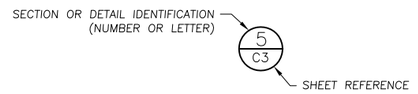
PROJECT DESCRIPTION

THESE DRAWINGS PROVIDE 65% DESIGN LEVEL DETAILS FOR THE CREATION OF TWO FRESHWATER PONDS AND THE ENHANCEMENT OF AN EXISTING FRESHWATER POND IN PESCADERO, CALIFORNIA.

WORK SHALL CONSIST OF DEVELOPING TEMPORARY ACCESS, CLEARING OF VEGETATION WITHIN THE GRADING FOOTPRINT, EXCAVATION OF NEW PONDS, PLACEMENT OF EXCESS SOILS TO CREATE AN UPLAND BENCH, AND THINNING OF RIPARIAN VEGETATION ALONG THE PERIMETER OF THE EXISTING WETLAND AREA TO CREATE IMPROVED HABITAT FOR SAN FRANCISCO GARTER SNAKE.

SHEET INDEX

SECTION AND DETAIL CONVENTION



** CALL BEFORE YOU DIG **

CONTACT UNDERGROUND SERVICE ALERT (USA)
PRIOR TO ANY CONSTRUCTION WORK 1-800-227-2600

WATERWAYS CONSULTING INC.
509A SWIFT ST.
SANTA CRUZ, CA 95060
PH:(831)421-9291 // FAX:(888)819-6847
WWW.WATWAYS.COM

PRELIMINARY
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
SAN MATEO RESOURCE CONCERVATION DISTRICT

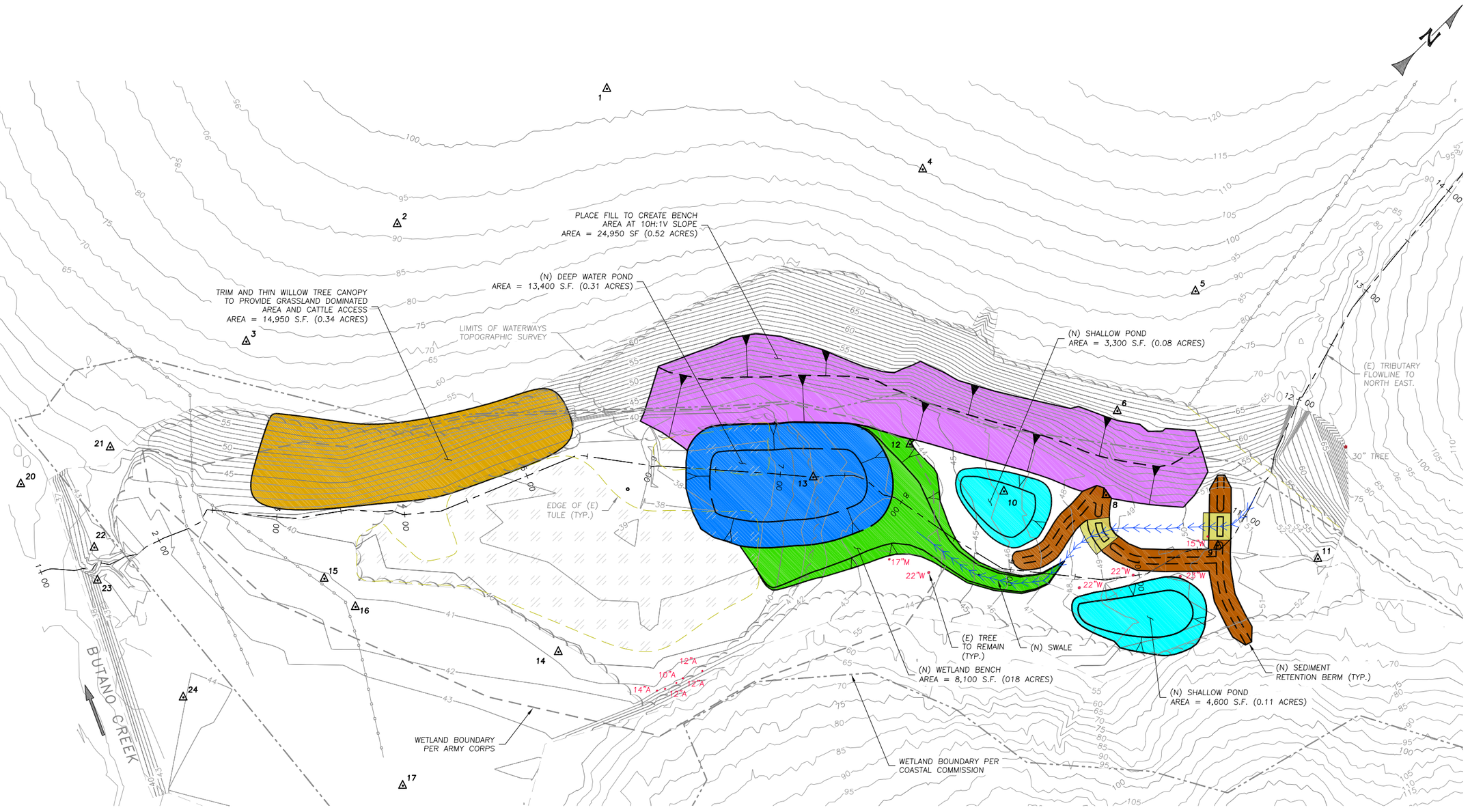
COVER

BUTANO POND MITIGATION PROJECT
65% DESIGN

DESIGNED BY: M.W.
DRAWN BY: C.H./D.R.
CHECKED BY: M.W.W.
DATE: 10/31/19
JOB NO.: 18-058

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C1 | 1 OF 8



SITE OVERVIEW
SCALE: 1" = 40'

LEGEND

- EXISTING CONTOURS
- EXISTING LIDAR BASED CONTOURS
- LIMITS OF WATERWAYS TOPOGRAPHIC SURVEY
- EXISTING FLOW LINE
- SURVEY CONTROL POINT
- EXISTING FENCE
- APPROXIMATE EDGE OF WILLOWS
- APPROXIMATE EDGE OF TULE
- NEW SWALE
- 12"A — EXISTING TREE TO REMAIN
- SP — LOCATION OF STAFF PLATE AND WATER LEVEL RECORDER

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SAN MATEO RESOURCE
CONCERVATION DISTRICT

SITE OVERVIEW

BUTANO POND
MITIGATION PROJECT
65% DESIGN

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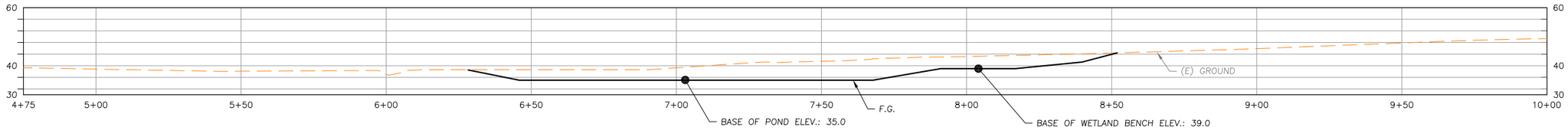
BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C2



PROFILE
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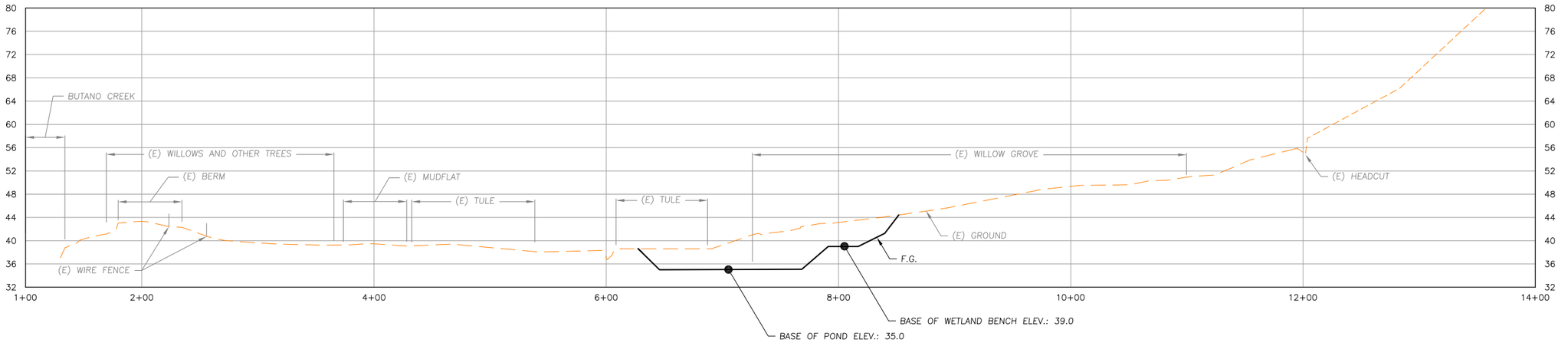

PROFILE - OVERVIEW
SCALE: H:1" = 50'; V:1" = 10'

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PROFILE

BUTANO POND
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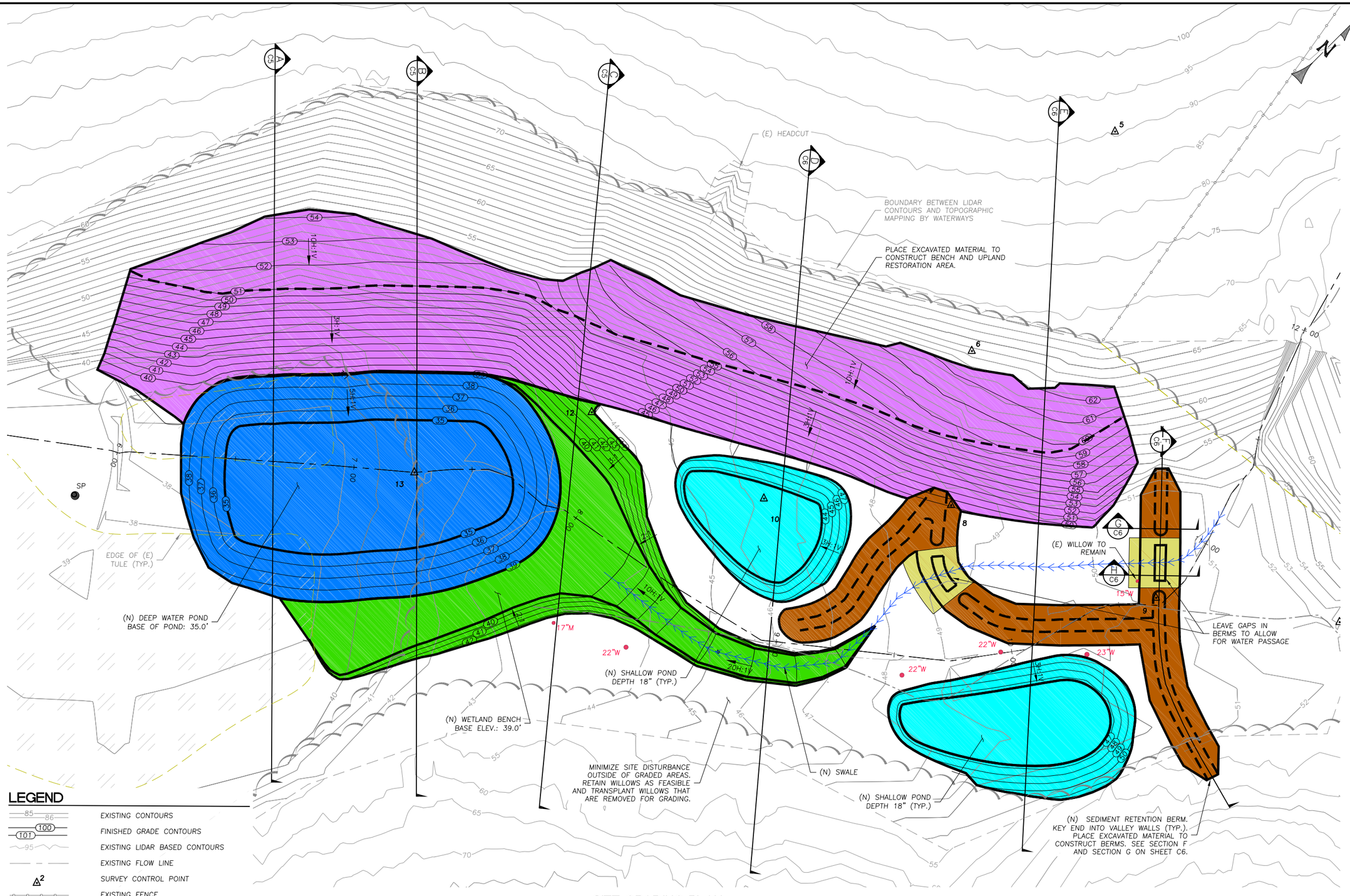
0 1"

C3



LEGEND

- EXISTING CONTOURS
- FINISHED GRADE CONTOURS
- EXISTING LIDAR BASED CONTOURS
- EXISTING FLOW LINE
- SURVEY CONTROL POINT
- EXISTING FENCE
- APPROXIMATE EDGE OF WILLOWS
- APPROXIMATE EDGE OF TULE
- EXISTING TREE TO REMAIN
- LOCATION OF EXISTING STAFF PLATE AND WATER LEVEL RECORDER

SITE GRADING PLAN

SCALE: 1" = 20'

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SITE GRADING PLAN

BUTANO POND MITIGATION PROJECT
65% DESIGN

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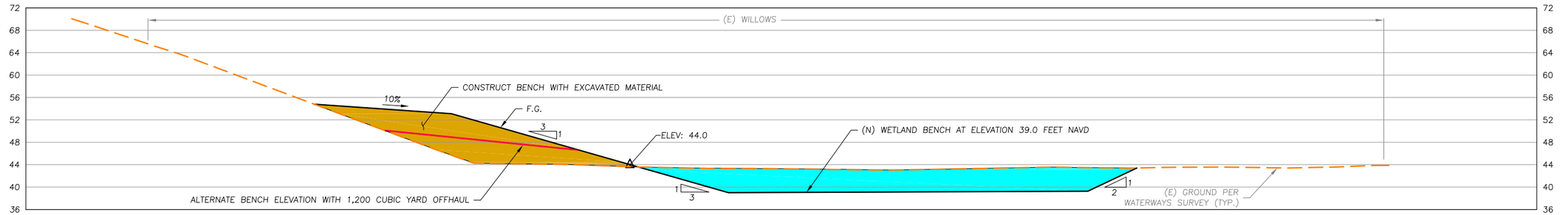
BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS

0 1"

C4 | 4 OF 8



SECTION C/C4
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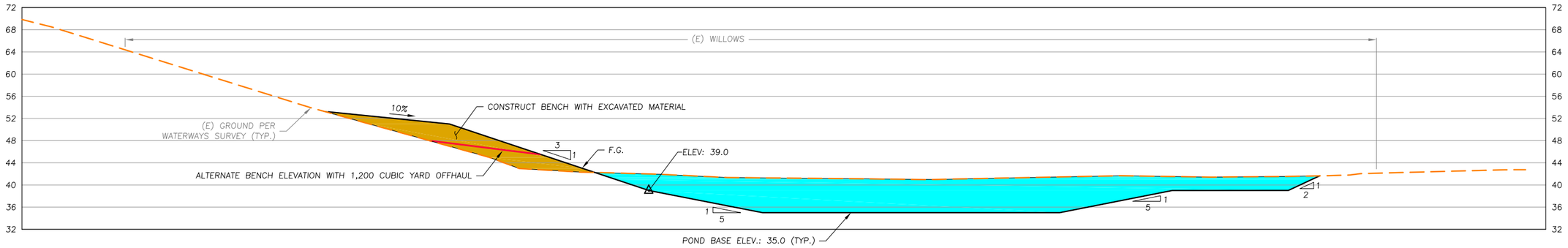

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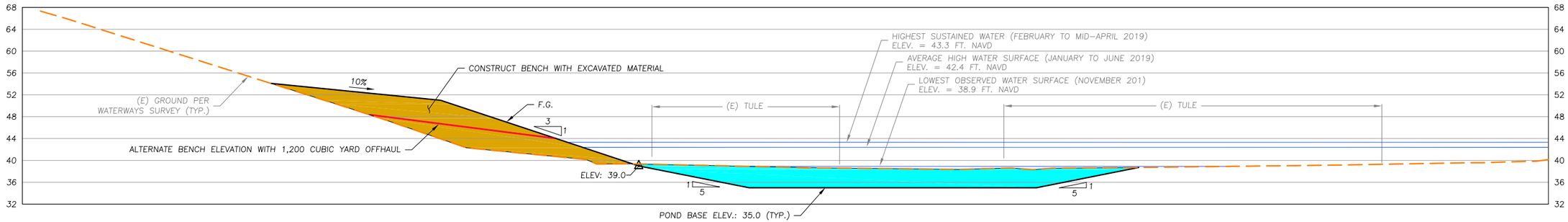

SECTION A/C4
SCALE: 1" = 10'

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PRELIMINARY
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PREPARED AT THE REQUEST OF:
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CONCERVATION DISTRICT

SECTIONS

BUTANO POND
MITIGATION PROJECT
65% DESIGN

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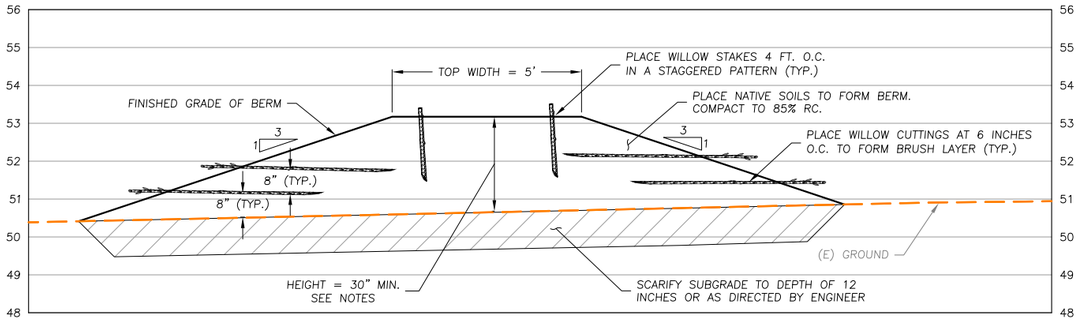
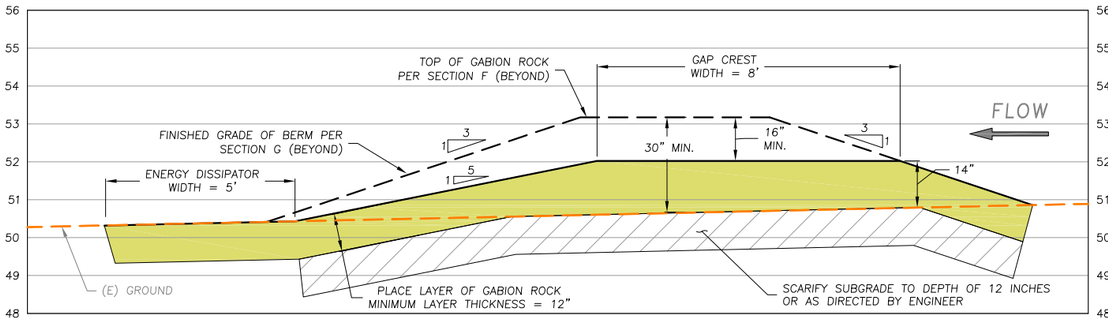
BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C5



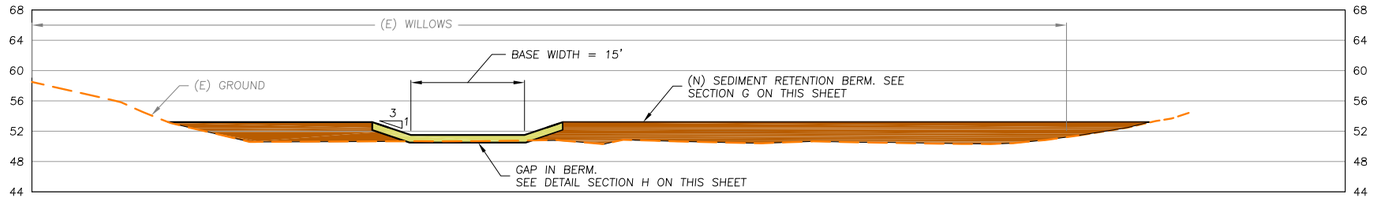
SEDIMENT RETENTION BERM (G / C4)
SCALE: 1" = 2'



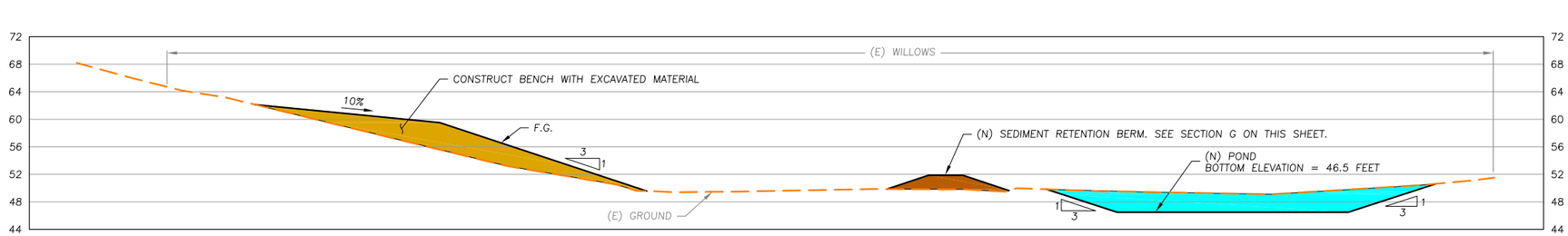
GAP IN SEDIMENT RETENTION BERM (H / C4)
SCALE: 1" = 2'

SEDIMENT RETENTION BERM NOTES:

1. CREST ELEVATION TYPICALLY SET TO A MINIMUM OF 30 INCHES ABOVE EXISTING ADJACENT VALLEY FLOW LINE.



SECTION (F / C4)
SCALE: 1" = 10'



SECTION (E / C4)
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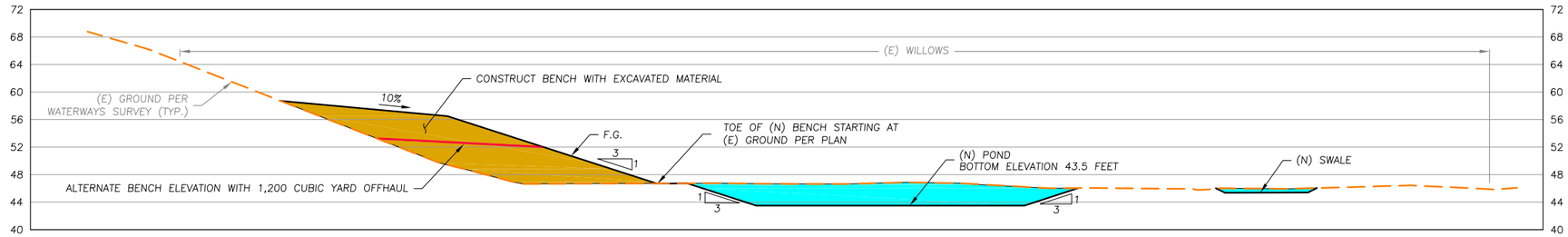

SECTION (D / C4)
SCALE: 1" = 10'

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PRELIMINARY

NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
SAN MATEO RESOURCE CONCERVATION DISTRICT

SECTIONS AND DETAILS

BUTANO POND MITIGATION PROJECT
65% DESIGN

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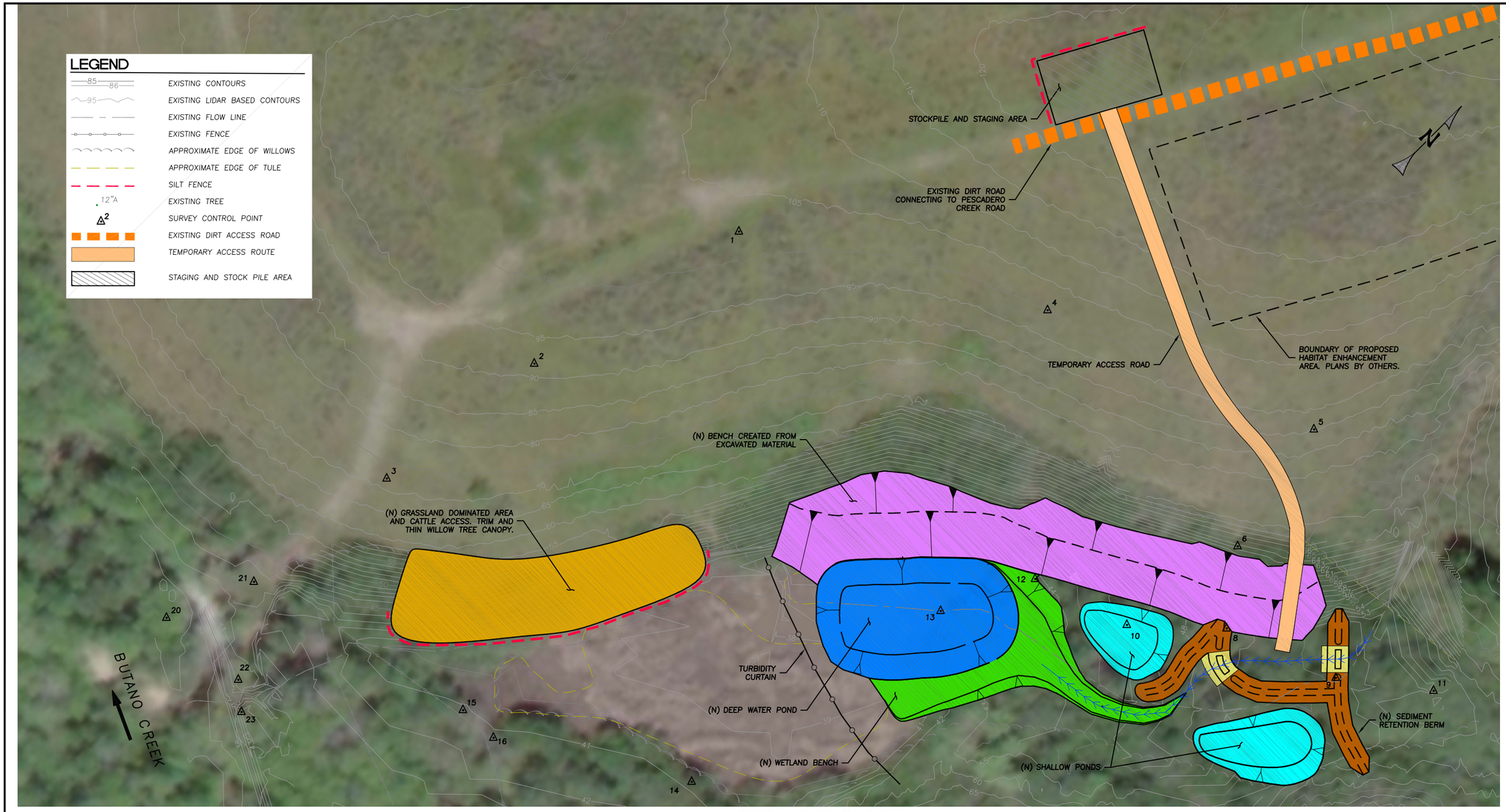
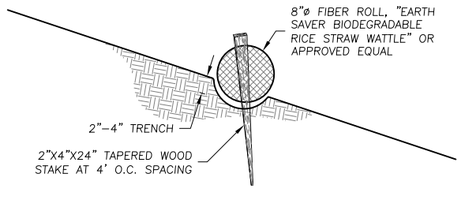


ACCESS AND STAGING PLAN

SCALE: 1" = 40'



FIBER ROLL

SCALE: 1"=1'

FIBER ROLL NOTES

1. CONSTRUCT TRENCHES TO THE DEPTH SHOWN, AND TO A SUFFICIENT WIDTH TO HOLD THE FIBER ROLL. INSTALL STAKES AT THE ON–CENTER SPACING SHOWN ALONG THE LENGTH OF THE FIBER ROLL AND STOPPED AT 12 INCHES FROM EACH END OF THE ROLLS. DRIVE STAKES TO BETWEEN TWO AND THREE INCHES ABOVE THE TOP OF THE ROLL.
2. PLACE FIBER ROLLS 10 FEET APART ALONG THE SLOPE FOR SLOPE INCLINATION OF 2H:1V AND STEEPER, AND 15 FEET APART ALONG THE SLOPE FOR SLOPE INCLINATION BETWEEN 2H:1V AND 4H:1V.
3. CLEAR THE BEDDING AREA FOR THE FIBER ROLL OF OBSTRUCTIONS INCLUDING ROCKS, CLODS, AND DEBRIS GREATER THAN ONE INCH IN DIAMETER BEFORE INSTALLATION.
4. INSTALL FIBER ROLLS APPROXIMATELY PARALLEL TO THE SLOPE CONTOUR. ANGLE THE TERMINUS OF ROWS UP–SLOPE AT 45 DEGREES FOR A DISTANCE OF THREE FEET. WHERE FIBER ROLLS MEET, PROVIDE AN OVERLAP OF 18 INCHES, WITH ADJACENT ROLLS TIGHTLY ABUTTING EACH OTHER.
5. INSTALL FIBER ROLLS PRIOR TO SEEDING WHERE USED WITHOUT SLOPE PROTECTION FABRIC.
6. INSTALL FIBER ROLLS OVER FABRIC (AFTER SEEDING) WHERE SLOPE PROTECTION FABRIC IS TO BE INSTALLED.

ACCESS AND STAGING AREA NOTES

1. USE ONLY THE APPROVED ACCESS POINTS, AS SHOWN ON THE DRAWINGS. STOCKPILE MATERIALS WITHIN AN EXISTING FLAT AND PREVIOUSLY DISTURBED AREA.
2. THE ACCESS PLAN SHOWN ON THE DRAWINGS IS SCHEMATIC. SUBMIT A SITE ACCESS PLAN FOR APPROVAL BY THE ENGINEER, PRIOR TO MOBILIZATION.
3. CONTAIN THE DOWNSLOPE PERIMETER OF STAGING OR STOCKPILE AREAS WITH SILT FENCE.
4. STORE, MAINTAIN AND REFUEL ALL EQUIPMENT AND MATERIALS IN A DESIGNATED PORTION OF THE STAGING AREA.

DEWATERING NOTES

1. WE ANTICIPATE A WATER SURFACE OF APPROXIMATELY ELEVATION 40.0 FEET NAVD DURING THE CONSTRUCTION WINDOW. WORK WOULD BE PERFORMED BY ISOLATING THE WORK LIMITS USING A TURBIDITY CURTAIN PLACED ALONG THE WESTERN LIMIT OF WORK, AND ALLOWING WATER LEVELS TO EQUILIBRATE WITHIN WORK AREAS AS EXCAVATIONS PROGRESS.
2. WATER LEVELS WOULD INUNDATE WORK AREAS ASSOCIATED WITH THE DEEP WATER POND AND THE WETLAND BENCH. WORK WITHIN THESE AREAS WOULD BEGIN AT THEIR UPSTREAM LIMITS, LEAVING A PLUG IN PLACE AS LONG AS POSSIBLE.
3. FINAL EXCAVATION OF THE PLUG WOULD OCCUR AS TURBID WATER IS PUMPED CONTINOUSLY TO A SETTLING POND, LIKELY THE ONE OF THE TWO SHALLOW PONDS COSTRUCTED TO THE EAST.

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PRELIMINARY

NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
SAN MATEO RESOURCE CONCERVATION DISTRICT

ACCESS, STAGING, AND EROSION CONTROL PLAN

BUTANO POND MITIGATION PROJECT
65% DESIGN

DESIGNED BY:	M.W.
DRAWN BY:	C.H./D.R.
CHECKED BY:	M.W.W.
DATE:	10/31/19
JOB NO.:	18–058

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS

0 1"

GENERAL NOTES

1. THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES, IF SHOWN, WERE COMPILED FROM RECORD INFORMATION AND FROM FIELD TIES TO EXISTING BOUNDARY MONUMENTATION. THE LOCATION OF THESE LINES IS SUBJECT TO CHANGE, PENDING THE RESULTS OF A COMPLETE BOUNDARY SURVEY.
2. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE 2018 EDITION OF THE STATE OF CALIFORNIA STANDARD SPECIFICATIONS, ISSUED BY THE DEPARTMENT OF TRANSPORTATION (HEREAFTER REFERRED TO AS "STANDARD SPECIFICATIONS").
3. THESE DESIGNS ARE NOT COMPLETE WITHOUT THE FINAL STAMPED TECHNICAL SPECIFICATIONS PREPARED BY WATERWAYS CONSULTING, INC. REFER TO SPECIFICATIONS FOR DETAILS NOT SHOWN HEREON.
4. NOTIFY THE ENGINEER AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. THE ENGINEER OR A DESIGNATED REPRESENTATIVE SHALL OBSERVE THE CONSTRUCTION PROCESS, AS NECESSARY TO ENSURE PROPER INSTALLATION PROCEDURES.
5. EXISTING UNDERGROUND UTILITY LOCATIONS:
   A. CALL UNDERGROUND SERVICE ALERT (1-800-642-2444) TO LOCATE ALL UNDERGROUND UTILITY LINES PRIOR TO COMMENCING CONSTRUCTION.
   B. PRIOR TO BEGINNING WORK, CONTACT ALL UTILITIES COMPANIES WITH REGARD TO WORKING OVER, UNDER, OR AROUND EXISTING FACILITIES AND TO OBTAIN INFORMATION REGARDING RESTRICTIONS THAT ARE REQUIRED TO PREVENT DAMAGE TO THE FACILITIES.
   C. EXISTING UTILITY LOCATIONS SHOWN ARE COMPILED FROM INFORMATION SUPPLIED BY THE APPROPRIATE UTILITY AGENCIES AND FROM FIELD MEASUREMENTS TO ABOVE GROUND FEATURES READILY VISIBLE AT THE TIME OF SURVEY. LOCATIONS SHOWN ARE APPROXIMATE. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE DIMENSIONS, SIZES, MATERIALS, LOCATIONS, AND DEPTH OF UNDERGROUND UTILITIES.
   D. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE LOCATION AND/OR PROTECTION OF ALL EXISTING AND PROPOSED PIPING, UTILITIES, TRAFFIC SIGNAL EQUIPMENT (BOTH ABOVE GROUND AND BELOW GROUND), STRUCTURES, AND ALL OTHER EXISTING IMPROVEMENTS THROUGHOUT CONSTRUCTION.
   E. PRIOR TO COMMENCING FABRICATION OR CONSTRUCTION, DISCOVER OR VERIFY THE ACTUAL DIMENSIONS, SIZES, MATERIALS, LOCATIONS, AND ELEVATIONS OF ALL EXISTING UTILITIES AND POTHOLE THOSE AREAS WHERE POTENTIAL CONFLICTS ARE LIKELY OR DATA IS OTHERWISE INCOMPLETE.
   F. TAKE APPROPRIATE MEASURES TO PROTECT EXISTING UTILITIES DURING CONSTRUCTION OPERATIONS. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE COST OF REPAIR/REPLACEMENT OF ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.
   G. UPON LEARNING OF THE EXISTENCE AND/OR LOCATIONS OF ANY UNDERGROUND FACILITIES NOT SHOWN OR SHOWN INACCURATELY ON THE PLANS OR NOT PROPERLY MARKED BY THE UTILITY OWNER, IMMEDIATELY NOTIFY THE UTILITY OWNER AND THE CITY BY TELEPHONE AND IN WRITING.
   H. UTILITY RELOCATIONS REQUIRED FOR THE CONSTRUCTION OF THE PROJECT FACILITIES WILL BE PERFORMED BY THE UTILITY COMPANY, UNLESS OTHERWISE NOTED.
12. IF DISCREPANCIES ARE DISCOVERED BETWEEN THE CONDITIONS EXISTING IN THE FIELD AND THE INFORMATION SHOWN ON THESE DRAWINGS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
13. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE FULLY INFORMED OF AND TO COMPLY WITH ALL LAWS, ORDINANCES, CODES, REQUIREMENTS AND STANDARDS WHICH IN ANY MANNER AFFECT THE COURSE OF CONSTRUCTION OF THIS PROJECT, THOSE ENGAGED OR EMPLOYED IN THE CONSTRUCTION AND THE MATERIALS USED IN THE CONSTRUCTION.
14. ALL TESTS, INSPECTIONS, SPECIAL OR OTHERWISE, THAT ARE REQUIRED BY THE BUILDING CODES, LOCAL BUILDING DEPARTMENTS, OR THESE PLANS, SHALL BE DONE BY AN INDEPENDENT INSPECTION COMPANY. JOB SITE VISITS BY THE ENGINEER DO NOT CONSTITUTE AN OFFICIAL INSPECTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE REQUIRED TESTS AND INSPECTIONS ARE PERFORMED.
15. PROJECT SCHEDULE: PRIOR TO COMMENCEMENT OF WORK, SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL A DETAILED CONSTRUCTION SCHEDULE. DO NOT BEGIN ANY CONSTRUCTION WORK UNTIL THE PROJECT SCHEDULE AND WORK PLAN IS APPROVED BY THE ENGINEER. ALL CONSTRUCTION SHALL BE CLOSELY COORDINATED WITH THE ENGINEER SO THAT THE QUALITY OF WORK CAN BE CHECKED FOR APPROVAL. PURSUE WORK IN A CONTINUOUS AND DILIGENT MANNER TO ENSURE A TIMELY COMPLETION OF THE PROJECT.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN, PERMITTING, INSTALLATION, AND MAINTENANCE OF ANY AND ALL TRAFFIC CONTROL MEASURES DEEMED NECESSARY.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GENERAL SAFETY DURING CONSTRUCTION. ALL WORK SHALL CONFORM TO PERTINENT SAFETY REGULATIONS AND CODES. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING ALL WARNING SIGNS AND DEVICES NECESSARY TO SAFEGUARD THE GENERAL PUBLIC AND THE WORK, AND PROVIDE FOR THE PROPER AND SAFE ROUTING OF VEHICULAR AND PEDESTRIAN TRAFFIC DURING THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE PROVISIONS OF OSHA IN THE CONSTRUCTION PRACTICES FOR ALL EMPLOYEES DIRECTLY ENGAGED IN THE CONSTRUCTION OF THIS PROJECT.
18. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTION LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL. NEITHER THE PROFESSIONAL ACTIVITIES OF CONSULTANT NOR THE PRESENCE OF CONSULTANT OR HIS OR HER EMPLOYEES OR SUB-CONSULTANTS AT A CONSTRUCTION SITE SHALL RELIEVE THE CONTRACTOR AND ITS SUBCONTRACTORS OF THEIR RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND APPLICABLE HEALTH OR SAFETY REQUIREMENTS OF ANY REGULATORY AGENCY OR OF STATE LAW.
19. MAINTAIN A CURRENT, COMPLETE, AND ACCURATE RECORD OF ALL AS-BUILT DEVIATIONS FROM THE CONSTRUCTION AS SHOWN ON THESE DRAWINGS AND SPECIFICATIONS, FOR THE PURPOSE OF PROVIDING THE ENGINEER OF RECORD WITH A BASIS FOR THE PREPARATION OF RECORD DRAWINGS.
20. MAINTAIN THE SITE IN A NEAT AND ORDERLY MANNER THROUGHOUT THE CONSTRUCTION PROCESS. STORE ALL MATERIALS WITHIN APPROVED STAGING AREAS.
21. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE FULLY INFORMED OF AND TO COMPLY WITH ALL PERMIT CONDITIONS, LAWS, ORDINANCES, CODES, REQUIREMENTS AND STANDARDS, WHICH IN ANY MANNER AFFECT THE COURSE OF CONSTRUCTION OF THIS PROJECT, THOSE ENGAGED OR EMPLOYED IN THE CONSTRUCTION AND THE MATERIALS USED IN THE CONSTRUCTION.
22. PROVIDE, AT CONTRACTOR'S SOLE EXPENSE, ALL MATERIALS, LABOR AND EQUIPMENT REQUIRED TO COMPLY WITH ALL APPLICABLE PERMIT CONDITIONS AND REQUIREMENTS.
23. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING AND LAYOUT, UNLESS OTHERWISE SPECIFIED.
24. FIELD INSPECTIONS AND OR THE PROVISION OF CONSTRUCTION STAKES DO NOT RELIEVE THE CONTRACTOR OF THEIR SOLE RESPONSIBILITY FOR ESTABLISHING ACCURATE CONSTRUCTED LINES AND GRADES, AS SPECIFIED.
25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND PRESERVATION OF ALL SURVEY MONUMENTS OR PROPERTY CORNERS. DISTURBED MONUMENTS SHALL BE RESTORED BACK TO THEIR ORIGINAL LOCATION AND SHALL BE CERTIFIED BY A REGISTERED CIVIL ENGINEER OR LAND SURVEYOR AT THE SOLE EXPENSE OF THE CONTRACTOR.
26. THE OWNER SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL PROPERTY LINES AND EASEMENTS AND CONFIRMING THAT PROPOSED PROJECT ELEMENTS ARE LOCATED ON DISTRICT OWNED LANDS OR ARE COORDINATED WITH OWNERS AND APPROPRIATE PERMISSIONS ARE GRANTED FOR THE WORK.
27. CONSTRUCTION WATER TO BE IMPORTED BY THE CONTRACTOR.
28. TREE DIMENSIONS: TRUNK DIAMETERS SHOWN REPRESENT DIAMETER AT BREAST HEIGHT (DBH), MEASURED IN INCHES. DBH IS MEASURED 4.5 FT ABOVE GROUND FOR SINGLE TRUNKS AND TRUNKS THAT SPLIT INTO SEVERAL STEMS CLOSE TO THE GROUND. THE DBH FOR TREES THAT SPLIT INTO SEVERAL STEMS CLOSE TO THE GROUND MAY BE CONSOLIDATED INTO A SINGLE DBH BY TAKING THE SQUARE ROOT OF THE SUM OF ALL SQUARED STEM DBH'S, UNLESS OTHERWISE NOTED. WHERE TREES FORK NEAR BREAST HEIGHT, TRUNK DIAMETER IS MEASURED AT THE NARROWEST PART OF THE MAIN STEM BELOW THE FORK. FOR TREES ON A SLOPE, BREAST HEIGHT IS REFERENCED FROM THE UPPER SIDE OF THE SLOPE. FOR LEANING TREES, BREAST HEIGHT IS MEASURED ON THE SIDE THAT THE TREE LEANS TOWARD. TREES WITH DBH LESS THAN 8" ARE TYPICALLY NOT SHOWN.

    12"P = 12" DBH PINE
29. TREE SPECIES ARE IDENTIFIED WHEN KNOWN. HOWEVER, FINAL DETERMINATION SHOULD BE MADE BY A QUALIFIED BOTANIST. REFER TO THE LEGEND FOR TREE SPECIES SYMBOLS.
30. TREE TRUNK DIMENSIONS MAY BE SHOWN OUT-OF-SCALE FOR PLOTTING CLARITY. CAUTION SHOULD BE USED IN DESIGNING NEAR TREE TRUNKS. THERE ARE LIMITATIONS ON FIELD ACCURACY, DRAFTING ACCURACY, MEDIUM STRETCH AS WELL AS THE "SPREAD" OR "LEANING" OF TREES. REQUEST ADDITIONAL TOPOGRAPHIC DETAIL WHERE CLOSE TOLERANCES ARE ANTICIPATED. INDIVIDUAL TREES ARE NOT TYPICALLY LOCATED WITHIN DRIPLINE CANOPY AREAS SHOWN.
29. WILLOWS TO BE REMOVED SHALL BE TRIMMED, TRANSPLANTED, AND UTILIZED IN THE REVEGETATION PLAN.
30. CONTRACTOR IS REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
31. THE CONTRACTOR SHALL CONFORM TO THE RULES AND REGULATIONS OF THE CONSTRUCTION SAFETY ORDERS OF THE CALIFORNIA DIVISION OF OCCUPATIONAL SAFETY AND HEALTH PERTAINING TO EXCAVATION AND TRENCHES THE CALIFORNIA CODE OF REGULATIONS TITLE 8, SUBCHAPTER 4 CONSTRUCTION SAFETY ORDERS, ARTICLE 6 EXCAVATION.
32. CULTURAL RESOURCES: IN THE EVENT THAT HUMAN REMAINS AND/OR CULTURAL MATERIALS ARE FOUND, ALL PROJECT-RELATED CONSTRUCTION SHALL CEASE WITHIN A 100-FOOT RADIUS. THE CONTRACTOR SHALL, PURSUANT TO SECTION 7050.5 OF THE HEALTH AND SAFETY CODE, AND SECTION 5097.94 OF THE PUBLIC RESOURCES CODE OF THE STATE OF CALIFORNIA, NOTIFY THE SAN MATEO COUNTY CORONER IMMEDIATELY.

EROSION CONTROL NOTES

1. THE EROSION CONTROL PLAN SHOWN IS INTENDED FOR THE SUMMER CONSTRUCTION SEASON (APRIL 15TH TO OCTOBER 15TH). IF THE DRAINAGE FEATURES SHOWN ON THESE DRAWINGS ARE NOT COMPLETED AND DISTURBED AREAS STABILIZED BY OCTOBER 1ST, CONSULT THE ENGINEER FOR ADDITIONAL RAINY SEASON EROSION CONTROL MEASURES.
2. COMPLY WITH THE APPROVED STORM WATER POLLUTION PREVENTION PLAN, TO BE PREPARED AND IMPLEMENTED BY THE CONTRACTOR IN COMPLIANCE WITH THE REQUIREMENTS OF THE STATE WATER RESOURCES CONTROL BOARD (SWRCB) NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBANCE ACTIVITIES, WATER QUALITY ORDER NO. 2009-0009-DWQ, GENERAL PERMIT NO. CAS000002, ADOPTED SEPTEMBER 2, 2009, (HEREAFTER CONSTRUCTION GENERAL PERMIT (CGP).
3. DO NOT BEGIN SITE DISTURBING ACTIVITIES UNTIL THE SWPPP HAS BEEN APPROVED BY THE CLIENT, UPLOADED TO SMARTS AND A WASTE DISCHARGE IDENTIFICATION (WDID) NUMBER RECEIVED.
4. IMPLEMENT SWPPP MEASURES AS THE FIRST ORDER OF BUSINESS UPON SITE MOBILIZATION.
5. PRIOR TO COMMENCING WORK, PROTECT AREAS TO REMAIN UNDISTURBED WITH ESA FENCING, AS SHOWN ON THE DRAWINGS. ADDITIONAL FENCING MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER.
6. UTILIZE ONLY THE APPROVED HAUL ROADS AND ACCESS POINTS (AS SHOWN ON THE DRAWINGS) FOR TRANSPORT OF MATERIALS AND EQUIPMENT.
7. BETWEEN OCTOBER 15 AND APRIL 15, PROTECT EXPOSED SOIL FROM EROSION AT ALL TIMES. DURING CONSTRUCTION, SUCH PROTECTION MAY CONSIST OF MULCHING AND/OR PLANTING OF NATIVE VEGETATION OF ADEQUATE DENSITY. BEFORE COMPLETION OF THE PROJECT, STABILIZE ALL EXPOSED SOIL ON DISTURBED SLOPES AGAINST EROSION.
8. MAINTAIN A STANDBY CREW FOR EMERGENCY WORK AT ALL TIMES DURING THE RAINY SEASON (OCTOBER 15 THROUGH APRIL 15). STOCKPILE NECESSARY MATERIALS AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES.
9. CONSTRUCT TEMPORARY EROSION CONTROL MEASURES AS SHOWN ON THIS PLAN AND/OR AS DIRECTED BY THE ENGINEER TO CONTROL DRAINAGE WHICH HAS BEEN AFFECTED BY GRADING AND/OR TRENCHING OPERATIONS.
10. INCORPORATE ADEQUATE DRAINAGE PROCEDURES DURING THE CONSTRUCTION PROCESS TO ELIMINATE EXCESSIVE PONDING AND EROSION.
11. CONSTRUCT AND MAINTAIN EROSION CONTROL MEASURES TO PREVENT THE DISCHARGE OF EARTHEN MATERIALS TO THE CREEK FROM DISTURBED AREAS UNDER CONSTRUCTION AND FROM COMPLETED CONSTRUCTION AREAS.
12. INSTALL ALL PROTECTIVE DEVICES AT THE END OF EACH WORK DAY WHEN THE FIVE-DAY RAIN PROBABILITY EQUALS OR EXCEEDS 50 PERCENT AS DETERMINED FROM THE NATIONAL WEATHER SERVICE FORECAST OFFICE: WWW.SRH.NOAA.GOV.
13. AFTER EACH RAINSTORM, REMOVE ALL SILT AND DEBRIS FROM (CHECK BERMS AND SEDIMENTATION BASIN) OR (SEDIMENTATION DEVICES) AND PUMP THE BASIN DRY.
14. THE EROSION CONTROL DEVICES ON THIS PLAN ARE A SCHEMATIC REPRESENTATION OF WHAT MAY BE REQUIRED. EROSION CONTROL DEVICES MAY BE RELOCATED, DELETED, OR ADDITIONAL ITEMS MAY BE REQUIRED DEPENDING ON THE ACTUAL SOIL CONDITIONS ENCOUNTERED, AT THE DISCRETION OF THE ENGINEER.
15. MAINTAIN ALL EROSION CONTROL DEVICES AND MODIFY THEM AS SITE PROGRESS DICTATES.
16. MONITOR THE EROSION CONTROL DEVICES DURING STORMS AND MODIFY THEM IN ORDER TO PREVENT PROGRESS OF ANY ONGOING EROSION.
17. CLEAN DAILY ANY EROSION OR DEBRIS SPILLING ONTO A PUBLIC STREET.
18. CONTACT THE ENGINEER IN THE EVENT THAT THE EROSION CONTROL PLAN AS DESIGNED REQUIRES ANY SUBSTANTIAL REVISIONS.
19. IMPLEMENT ALL REQUIRED BMP'S PRIOR TO COMMENCING SITE DISTURBING ACTIVITIES.

EARTHWORK NOTES

1. ALL GRADING SHALL COMPLY WITH THE RECOMMENDATIONS OF THE ENGINEER AND WITH THE APPLICABLE REQUIREMENTS OF THE SAN MATEO COUNTY GRADING ORDINANCE.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE SITE AND MAKE HIS OWN INTERPRETATIONS WITH REGARD TO MATERIALS, METHODS AND EQUIPMENT NECESSARY TO PERFORM THE WORK REQUIRED FOR THIS PROJECT.
3. GRADING SUMMARY:

TOTAL CUT VOLUME =	3,500 CY
TOTAL FILL VOLUME =	2,800 CY (COMPACTED IN PLACE WITH 20% LOSSES)
NET (CUT/FILL) =	0 CY

   THE ABOVE QUANTITIES ARE APPROXIMATE IN-PLACE VOLUMES CALCULATED AS THE DIFFERENCE BETWEEN EXISTING GROUND AND THE PROPOSED FINISH GRADE, PREPARED FOR PERMITTING PURPOSES ONLY. EXISTING GROUND IS DEFINED BY THE TOPOGRAPHIC CONTOURS AND/OR SPOT ELEVATIONS ON THE PLAN. PROPOSED FINISH GRADE IS DEFINED AS THE DESIGN SURFACE ELEVATION OF WORK TO BE CONSTRUCTED. THE QUANTITIES HAVE NOT BEEN FACTORED TO INCLUDE ALLOWANCES FOR BULKING, CLEARING AND GRUBBING, SUBSIDENCE, SHRINKAGE, OVER EXCAVATION, AND RECOMPACTION, UNDERGROUND UTILITY AND SUBSTRUCTURE SPOILS AND CONSTRUCTION METHODS.

   THE CONTRACTOR SHALL PERFORM AN INDEPENDENT EARTHWORK ESTIMATE FOR THE PURPOSE OF PREPARING BID PRICES FOR EARTHWORK. THE BID PRICE SHALL INCLUDE COSTS FOR ANY NECESSARY IMPORT AND PLACEMENT OF EARTH MATERIALS OR THE EXPORT AND PROPER DISPOSAL OF EXCESS OR UNSUITABLE EARTH MATERIALS.
4. PRIOR TO COMMENCING WORK, PROTECT ALL SENSITIVE AREAS TO REMAIN UNDISTURBED WITH TEMPORARY FENCING, AS SHOWN ON THE DRAWINGS, AS SPECIFIED, OR AS DIRECTED BY THE ENGINEER.
5. DO NOT DISTURB AREAS OUTSIDE OF THE DESIGNATED LIMITS OF DISTURBANCE, UNLESS AUTHORIZED IN WRITING BY THE ENGINEER. THE COST OF ALL ADDITIONAL WORK ASSOCIATED WITH RESTORATION AND REVEGETATION OF DISTURBED AREAS OUTSIDE THE DESIGNATED LIMITS OF DISTURBANCE, AS SHOWN ON THE DRAWINGS, SHALL BE BORNE SOLELY BY THE CONTRACTOR.
6. REMOVE ALL EXCESS SOILS TO AN APPROVED DUMP SITE OR DISPOSE OF ON SITE AT A LOCATION TO BE APPROVED BY THE ENGINEER, IN A MANNER THAT WILL NOT CAUSE EROSION.
7. CLEARING AND GRUBBING, SUBGRADE PREPARATION AND EARTHWORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 19 OF THE STANDARD SPECIFICATIONS, THESE DRAWINGS, AND THE TECHNICAL SPECIFICATIONS.
8. PRIOR TO STARTING WORK ON THE PROJECT, SUBMIT FOR ACCEPTANCE BY THE ENGINEER A HAZARDOUS MATERIALS CONTROLS AND SPILL PREVENTION PLAN. INCLUDE PROVISIONS FOR PREVENTING HAZARDOUS MATERIALS FROM CONTAMINATING SOIL OR ENTERING WATER COURSES, AND ESTABLISH A SPILL PREVENTION AND COUNTERMEASURE PLAN.
9. UNLESS AUTHORIZED BY THE GEOTECHNICAL ENGINEER, THE FOLLOWING MATERIALS SHALL NOT BE INCORPORATED INTO THE WORK:
   A. ORGANIC MATERIALS SUCH AS PEAT, MULCH, ORGANIC SILT OR SOD.
   B. SOILS CONTAINING EXPANSIVE CLAYS.
   C. MATERIAL CONTAINING EXCESSIVE MOISTURE.
   D. POORLY GRADED COURSE MATERIAL.
   E. PARTICLE SIZES IN EXCESS OF 6 INCHES.
   F. MATERIAL WHICH WILL NOT ACHIEVE SPECIFIED DENSITY OR BEARING.
   G. MATERIAL WITH EXCESSIVE MOISTURE CONTENT.
10. FINE GRADING ELEVATIONS, CONFORMS, AND SLOPES NOT CLEARLY SHOWN ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD TO DIRECT DRAINAGE TO PROTECTED DRAINAGE CONTROL STRUCTURES OR NATURAL WATERWAYS IN A MANNER THAT SUPPORTS THE INTENT OF THE DESIGN. ALL FINAL GRADING SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
11. UNLESS OTHERWISE DIRECTED BY ENGINEER, ALL FILL TO BE COMPACTED TO A MINIMUM OF 85% MAXIMUM DENSITY AS DETERMINED BY ASTM-D1557 AND SO CERTIFIED BY TESTS AND REPORTS FROM THE CIVIL ENGINEER IN CHARGE OF THE GRADING CERTIFICATION.
12. SPREAD FILL MATERIAL IN LIFTS OF APPROXIMATELY 8 INCHES, MOISTENED OR DRIED TO NEAR OPTIMUM MOISTURE CONTENT AND RECOMPACTED. THE MATERIALS FOR ENGINEERED FILL SHALL BE APPROVED BY A REGISTERED CIVIL ENGINEER. ANY IMPORTED MATERIALS MUST BE APPROVED BEFORE BEING BROUGHT TO THE SITE. THE MATERIALS USED SHALL BE FREE OF ORGANIC MATTER AND OTHER DELETERIOUS MATERIALS.
13. ALL CONTACT SURFACES BETWEEN ORIGINAL GROUND AND RECOMPACTED FILL SHALL BE EITHER HORIZONTAL OR VERTICAL. ALL ORGANIC MATERIAL SHALL BE REMOVED AND THE REMAINING SURFACE SCARIFIED TO A DEPTH OF AT LEAST 12 INCHES, UNLESS DEEPER EXCAVATION IS REQUIRED BY THE ENGINEER.
14. REGULATORY AGENCIES MAY REQUIRE A FINAL GRADING COMPLIANCE LETTER. WE CAN ONLY OFFER THIS LETTER IF WE ARE CALLED TO THE SITE TO OBSERVE AND TEST, AS NECESSARY, ANY GRADING AND EXCAVATION OPERATIONS FROM THE START OF CONSTRUCTION. WE CANNOT PREPARE A LETTER IF WE ARE NOT AFFORDED THE OPPORTUNITY OF OBSERVATION FROM THE BEGINNING OF THE GRADING OPERATION. THE CONTRACTOR MUST BE MADE AWARE OF THIS AND EARTHWORK TESTING AND OBSERVATION MUST BE SCHEDULED ACCORDINGLY. PLEASE CONTACT OUR OFFICE: (831) 421-9291.

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NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
SAN MATEO RESOURCE
CONCERVATION DISTRICT

NOTES

BUTANO POND
MITIGATION PROJECT
65% DESIGN

DESIGNED BY:	M.W.
DRAWN BY:	C.H./D.R.
CHECKED BY:	M.W.W.
DATE:	10/31/19
JOB NO.:	18-058

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

EXHIBIT J
Mitigation, Monitoring, and Reporting Program (Draft)

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
BIOLOGICAL RESOURCES			
Mitigation Measure BIO-1: Rare Plant Surveys o Rare plant surveys of the proposed disturbance areas will be conducted by a qualified botanist for the plant species that have the potential to occur within the project site. Surveys shall be done in accordance with CNPS's Botanical Survey Guidelines (CNPS 2001), CDFW's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2018), and USFWS's Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (USFWS 1996). If present, special-status plant populations will be flagged and if possible avoided during construction. If the populations cannot be avoided during construction a mitigation plan will be developed for approval by the Department and CDFW which will include transplanting the plant population.	Project Applicant & Construction Contractor	Qualified Botanist	Before Construction
Mitigation Measure BIO-2: CRLF Avoidance and Minimization Measures o Within two days of the start of work on a pond, the pond will be sampled by a qualified biologist to ensure that all frogs from that pond are in post-metamorphic stage and will be minimally affected by draining the pond. If the construction plans allow for existing open water and emergent vegetation areas to remain wetted and be isolated from construction activities, a qualified biologist will be on-site during draining of the work area to ensure that any remaining tadpoles or metamorphs are safely relocated to areas with standing water. o Draining of ponds to perform authorized work shall only occur during the part of the year when the tadpole life stage of CRLF has been completed and before the subsequent breeding season (i.e. between August 15 and November 1). o All biological monitors for the project shall be approved by USFWS prior to commencement of project activities. The biological monitors and qualified biologists shall have the responsibility and authority of stopping the proposed project if any crews or personnel are not complying with the provisions outlined in this IS/MND.	Project Applicant & Construction Contractor	Qualified Botanist	Before and During Construction

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
Cont. Mitigation Measure BIO-2: CRLF Avoidance and Minimization Measures o Biological monitor(s) and/or qualified biologists shall be on the project site while initial ground-disturbing activities (excavation) or pond draining activities take place. A Service-approved biologist will be on-call during all project activities in the event a San Francisco garter snake or California red-legged frog is discovered, or for any other assistance relating to the avoidance and minimization measures. o Prior to project activities, a biological monitor shall clearly mark/flag or erect temporary construction fencing to designate the work area and to delineate the areas that shall be avoided. Flagging and or temporary construction fencing shall be removed immediately after the completion of construction work. o Dredge spoils shall be placed in a containment area away from the creek. The area where dredge spoils will be placed shall be surveyed for CRLF and SFGS. If burrows are present in this area, Permittee shall hand excavate burrows until the burrow terminates or until a maximum depth of 30 centimeters. If CRLF or SFGS are found, all work shall cease and Permittee shall notify CDFW and USFWS immediately. o Any vehicle parked on site for more than 15 minutes shall be inspected by the biological monitor before it is moved to ensure that CRLF and/or SFGS have not moved under the vehicle. Any parking areas shall be checked in advance by the biological monitor or qualified biologist. o If CRLF enters the work area, all work shall stop until the qualified biologist relocates the animal or it leaves on its own. Only the qualified biologist can handle and relocate CRLF. Any sightings and/or injuries of this species shall be immediately reported to the CDFW per instructions below: o CRLF Relocation. Prior to the onset of any project-related activities, the qualified biologist must identify appropriate areas to receive CRLF adults from the Project Areas. These areas must be in proximity to the capture site, contain suitable habitat, not be affected by project activities, and be free of exotic predatory species to the best of the approved biologist's knowledge. Translocation shall only be performed by the qualified biologist.	Project Applicant & Construction Contractor	Qualified Botanist	Before and During Construction

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
Mitigation Measure BIO-3: SFGS Avoidance and Minimization Measures o Prior to and within 48 hours of the planned start of project activities, a focused survey for SFGS using agency approved protocol shall be conducted by a USFWS-approved biological monitor to determine if they are in the area. If SFGS are found, the USFWS shall be notified immediately to determine the correct course of action and proposed project shall not begin until approved by the USFWS. o Activities that result in ground disturbance will occur May 1–October 30 (active season). Vegetation will be cut using to 3 inches in height. Once the ground is visible, a visual survey for SFGS will be conducted by the biologist prior to additional ground disturbance. Field crews will install solid exclusion fencing if the work is in areas of known species presence. If work needs to occur during the inactive period (November 1– April 30) and is located in an area of known occupancy, flag and avoid any burrows by at least 10 feet wherever possible. If any burrows cannot be avoided by this distance, a biologist will inspect following activities to determine whether or not the burrow has been collapsed. If a burrow is collapsed, the biologist shall make efforts to open the burrow. o Prior to conducting non-native plant removal or treatments (e.g. spraying with herbicide, cutting, pulling, digging out), the permittee shall make every reasonable attempt to ensure that SFGS are not hidden within the plant or residual plant matter to be treated. o The USFWS approved biological monitor shall walk roads cleared for vehicle access each morning prior to vehicle traffic to ensure San Francisco garter snakes are not in the road. Vehicles shall not drive at speeds greater than 5 miles per hour within the project area and drivers shall observe the road for San Francisco garter snakes. If a San Francisco garter snake is found on the road, the vehicle operator shall stop, and the San Francisco garter snake shall be allowed to leave on its own volition.	Project Applicant & Construction Contractor	Qualified Biologist	Before and During Construction

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
Mitigation Measure BIO-4 Western Pond Turtle Avoidance and Minimization Measures: o Prior to and within 48 hours of the planned start of construction, a focused survey for WPT shall be conducted by a CDFW approved biological monitor to determine if they are in the area. If these species are found, the CDFW shall be notified immediately to determine the correct course of action and construction activities shall not begin until approved by the CDFW. o In the event WPT are found in the project area, the Permittee shall exercise measures to avoid direct injury to them as well as avoid areas where they are observed to occur. If a WPT is observed, it shall be left alone to move out of the area on its own. If it does not move on its own, it can be relocated by the biological monitor or the qualified biologist to at least 100-meters away from project location to a suitable habitat.	Project Applicant & Construction Contractor	Qualified Biologist	Before Construction
Mitigation Measure BIO-5: Nesting Bird Avoidance and Minimization Measures o Conduct Preconstruction Surveys and Implement Minimization and Avoidance Measures in Suitable Habitat for Nesting Bird Species, if Present. o To the extent feasible, vegetation removal activities shall not occur during the bird breeding season of February 15 through August 31. o If vegetation removal must occur during the breeding season, all sites shall be surveyed by a qualified biologist to verify the presence or absence of nesting birds. o Preconstruction surveys will be conducted no more than two weeks prior to the start of work from February 15 – August 31. o If the survey indicates the potential presence of nesting birds, a buffer will be placed around the nest in which no work will be allowed until the young have successfully fledged. The size of the nest buffer will be determined by the biologist in consultation with the CDFW, and will be based to a large extent on the nesting species and its sensitivity to disturbance. The buffers may be increased or decreased, as appropriate, depending on the bird species and the level of disturbance anticipated near the nest.	Project Applicant & Construction Contractor	Qualified Botanist	Before and During Construction

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
Mitigation Measure BIO-6: SF Dusky Footed Woodrat Avoidance and Minimization Measures o The removal of trees and large shrubs shall be minimized to the maximum extent practicable and shall be limited to those areas directly adjacent within the project footprint. o Tree removal or construction activities with potential to disturb suitable habitat for dusky-footed woodrat (riparian scrub) shall only occur after a biologist conducts a pre-construction survey for woodrat nests within the woody riparian habitats to be removed and adjacent riparian habitat. If any woodrat nest is identified outside the proposed disturbance footprint, exclusion zones around each den entrance or cluster of entrances will be demarcated. The configuration of exclusion zones should be circular, with a radius measured outward from the next. No construction activities will occur within the exclusion zones. Exclusion zone radii for active nests will be 50 feet, if possible. Exclusion zones will be demarcated with staking and flagging that encircles each den or cluster of dens but does not prevent access to the nest. If a nest is identified within the disturbance footprint, then nest relocation procedure will be determined by the biologist, in consultation with CDFW.	Project Applicant & Construction Contractor	Qualified Biologist	Before Construction
Mitigation Measure BIO-7: American Badger Avoidance and Minimization Measures o Pre-construction surveys shall be conducted in any grassland habitat within the project footprint for active badger dens. If a badger den is identified within the proposed disturbance footprint, exclusion zones around each den entrance will be demarcated. The configuration of exclusion zones should be circular, with a radius measured outward from the den entrance(s). No construction activities will occur within the exclusion zones. Exclusion zone radii for active dens will be at least 50 feet. Exclusion zones will be demarcated with staking and flagging that encircles each den or entrance but does not prevent access to the den by a badger.	Project Applicant & Construction Contractor	Qualified Biologist	Before Construction

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
Mitigation Measure BIO-8: Open Water Protective Measures o The project applicant would implement the project BMPs to minimize stormwater runoff, erosion, and potential water quality impacts associated with construction activities. In addition, all contractors working in a capacity that could increase the potential for adverse water quality impacts shall receive training regarding the environmental sensitivity of the site and need to minimize impacts. Contractors shall be trained in implementation of stormwater BMPs for protection of water quality. o No debris, rubbish, creosote-treated wood, soil, silt, sand, cement, concrete, or washings thereof, or other construction related materials or wastes, oil or petroleum products or other organic or earthen material shall be allowed to enter into, or be placed where it may be washed by rainfall or runoff into open water habitat and/or waters of the State. Any of these materials placed within or where they may enter waters shall be removed immediately. When operations are completed, any excess material shall be removed from the work area and any areas adjacent to the work area where such material may be washed into adjacent waters. o During construction the contractor shall not dump any litter or construction debris within the riparian/stream zone. All such debris and waste shall be picked up daily and properly disposed of at an appropriate site. o Any excavation necessary shall be completed from outside of wetlands, where feasible, by using an excavator or backhoe tractor, thereby limiting the driving of heavy equipment across wetlands. o Prohibit vehicular and equipment refueling 100 feet from the edge of other wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review by the RCD and/or consulting biologist. Maintain spill prevention and cleanup equipment in refueling areas.	Project Applicant & Construction Contractor	Qualified Biologist	Before and During Construction

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
Mitigation Measure BIO-9*:* Wetland Protective Measures o Prior to the start of construction within areas containing sensitive biological resources, the biological monitor should delineate and conspicuously flag all sensitive aquatic resources to prevent impacts to these resources. If required, setback or non-disturbance buffer zones around these resources should be established and monitored by a biologist. o Construction activities nearby or within aquatic habitats should be limited to the maximum extent feasible. o Any aquatic habitat that does not fall within the construction footprint should be flagged and avoided. o Work within waters should be conducted during the dry season, when water is not flowing, to the extent possible. o Worker environmental awareness training should be conducted for all construction crews and contractors. The education training should be conducted prior to starting work on the project and upon the arrival of any new worker. The training should include: locations of sensitive areas; possible fines for violations; environmental permits and regulatory compliance requirements including all relevant avoidance and mitigation measures, and required actions should sensitive species be encountered. Additional training should be conducted as needed, including morning "tailgate" sessions to update crews as they advance into sensitive areas for projects with multiple work areas. In addition, a record of all personnel trained during the project should be maintained for compliance verification.	Project Applicant & Construction Contractor	Qualified Biologist	Before and During Construction

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
CULTURAL RESOURCES			
Mitigation Measure CUL-1: Conduct Identification Training and Stop Work if Archaeological Resources are Encountered During Construction o The construction contractor shall participate in a cultural resource identification training session by a qualified archaeologist in order to be aware of the potential resources that might be uncovered. If archaeological resources are encountered during project construction, work shall be temporarily halted in the vicinity of the discovered materials and construction contractor shall avoid altering these materials and their context until a qualified archaeologist has evaluated the resource. Recommendations on how to treat the resource by the qualified archaeologist may include evaluation, preservation in place, archaeological test excavation and/or archaeological data recovery, and a draft and final report documenting such activities.	Project Applicant & Construction Contractor	Qualified Archaeologist	Before and During Construction
Mitigation Measure CUL-2: Discovery of Human Remains o If at any time during site preparation, excavation, or other ground disturbance associated with the proposed project, human remains are discovered, the construction contractor shall immediately cease and desist from all further site excavation and notify the RCD and POST. The RCD shall notify the sheriff-coroner. If the coroner determines the remains are Native American, the coroner will contact the Native American Heritage Commission. The Native American Heritage Commission will identify the person or persons believed to be most likely descended from the deceased Native American. The most likely descendent makes recommendations regarding the treatment of the remains with appropriate dignity. Disturbance shall not resume until the significance of the human remains is determined and appropriate mitigations to preserve the resource on the site are established.	Project Applicant & Construction Contractor	Qualified Archaeologist	During Construction