

**PUBLIC DRAFT**  
**INITIAL STUDY/  
NEGATIVE DECLARATION**

**Resource Protection through Erosion Stabilization Project  
Molesworth Channel  
Anderson Marsh State Historic Park**

**February 9, 2015**



State of California  
**DEPARTMENT OF PARKS AND RECREATION**

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## NEGATIVE DECLARATION

**PROJECT:** Resource Protection through Erosion Stabilization  
Molesworth Channel at Anderson Marsh State Historic Park

**LEAD AGENCY:** California Department of Parks and Recreation

**AVAILABILITY  
OF DOCUMENTS:** This Initial Study/Negative Declaration is available for  
review at:

California Department of Parks and Recreation  
Northern Service Center  
One Capitol Mall – Suite 410  
Sacramento, CA 95814

Northern Buttes District Office  
400 Glen Drive  
Oroville, Ca 95966-9222

Clear Lake State Park  
Sector Office  
5300 Soda Bay Road  
Kelseyville, CA 95451

Redbud Library  
14785 Burns Valley Road  
Clearlake, CA 95422

California Department of Parks and Recreation Internet Website  
[http://parks.ca.gov/default.asp?page\\_id=980](http://parks.ca.gov/default.asp?page_id=980)

**PROJECT** The Department of Parks and Recreation proposes to protect sensitive resources by implementing targeted bank stabilization measures. The project would stabilize critical, limited sections of the channel bank that are rapidly eroding along four discrete areas of the channel banks totaling approximately 57,120 square feet. The channel banks would be stabilized through treatment consisting of laying back channel bank slopes, installing turf reinforced mats with soil backfill, re-vegetating native tree and grass species, and installing temporary erosion control blankets.

A copy of the Initial Study is incorporated into this Negative Declaration. Questions or comments regarding this Initial Study/Negative Declaration should be addressed to:

Patricia DuMont  
Environmental Coordinator  
California Department of Parks and Recreation  
Northern Service Center  
One Capitol Mall, Suite 410  
Sacramento, California 95814  
Fax: 916-445-8883  
Email: [CEQANSC@parks.ca.gov](mailto:CEQANSC@parks.ca.gov)  
Subject line: Molesworth Channel

Submissions must be in writing and postmarked or received by fax or email no later than **March 13, 2015**. The originals of any faxed document must be received by regular mail within ten working days following the deadline for comments, along with proof of successful fax transmission. Email or fax submissions must include your full name and address. All comments will be included in the final environmental document for this project and will become part of the public record.

Pursuant to Section 21082.1 of the California Environmental Quality Act, the California Department of Parks and Recreation (DPR) has independently reviewed and analyzed the Initial Study and Negative Declaration for the proposed project and finds that these documents reflect the independent judgment of DPR.



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Patricia DuMont  
Environmental Coordinator  
Northern Service Center

2.10.15

Date



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Kathleen Amann  
Deputy Director, Acquisition and Development  
Northern Service Sector

2/10/15

Date

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### **Appendix A. Project Plans**

### **Appendix B. Biological Report**

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## CHAPTER 1 – INTRODUCTION

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### 1.1 INTRODUCTION AND REGULATORY GUIDANCE

The Initial Study/Negative Declaration (IS/ND) has been prepared by the California Department of Parks and Recreation (DPR) to evaluate the potential environmental effects of the proposed Resource Protection through Erosion Stabilization Project (hereafter referred to as the proposed project) at the Anderson Marsh State Historic Park (AMSHP) within the City of Clearlake, California. This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code §21000 et seq., and the State CEQA Guidelines, California Code of Regulations (CCR) §15000 et seq.

An Initial Study is conducted by a lead agency to determine if a project may have a significant effect on the environment [CEQA Guidelines §15063(a)]. If there is substantial evidence that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) must be prepared, in accordance with CEQA Guidelines §15064(a). However, if the lead agency determines that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, a Negative Declaration (ND) may be prepared instead of an EIR [CEQA Guidelines §15070(a)]. The lead agency prepares a written statement describing the reasons a proposed project would not have a significant effect on the environment and, therefore, why an EIR need not be prepared. This IS/ND conforms to the content requirements under CEQA Guidelines §15071.

### 1.2 LEAD AGENCY

The lead agency is the public agency with primary approval authority over the proposed project. In accordance with CEQA Guidelines §15051(b)(1), "the lead agency will normally be an agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose." The lead agency for the proposed project is the Department of Parks and Recreation (DPR). The project manager for the lead agency is:

Srikanth Rao  
Construction Supervisor II  
California Department of Parks and Recreation  
Northern Service Center  
One Capitol Mall, Suite 410  
Sacramento, California 95814  
Phone: 916-445-8665

### 1.3 PURPOSE AND DOCUMENT ORGANIZATION

The purpose of this document is to evaluate the potential environmental effects of the proposed Resource Protection through Erosion Stabilization Project. Applicable DPR

Standard and Specific Project Requirements are identified and will be implemented as part of the project, eliminating any potentially significant adverse impacts or reducing them to a less-than-significant level.

This document is organized as follows:

#### *Chapter 1 - Introduction*

This chapter is an introduction to the project and describes the purpose and organization of this document.

#### *Chapter 2 - Project Description*

This chapter describes the reasons for the project, scope of the project, project requirements, and project objectives.

#### *Chapter 3 - Environmental Setting, Impacts, and Mitigation Measures*

This chapter identifies the significance of potential environmental impacts, explains the environmental setting for each environmental issue, and evaluates the potential impacts identified in the CEQA Environmental (Initial Study) Checklist. All potentially significant impacts identified in this chapter are considered less than significant or reduced to a less than significant level with implementation of DPR Standard and Specific Project Requirements. Therefore, no mitigation measures are required for the proposed project.

#### *Chapter 4 – Mandatory Findings of Significance*

This chapter identifies and summarizes the overall significance of any potential impacts to the natural and cultural resources, cumulative impacts and impacts to humans, as identified in the Initial Study.

#### *Chapter 5 - References*

This chapter identifies the references and sources used in the preparation of this IS/ND.

#### *Chapter 6 - Report Preparation*

This chapter includes a list of report preparers.

### **1.4 SUMMARY OF FINDINGS**

Chapter 3 of this document contains the Environmental (Initial Study) Checklist that identifies the potential environmental impacts (by environmental issue) and a brief discussion of each impact resulting from implementation of the proposed project.

Based on the Environmental Checklist and the supporting environmental analysis provided in this document, the proposed Resource Protection through Erosion Stabilization Project would result in less than significant impacts for the following issues: aesthetics, air quality, biological resources, cultural resources, geology/soils, greenhouse gas emissions, hazards and hazardous materials, hydrology/water quality, noise, public services, and transportation/traffic.

In accordance with §15064(f)(3) of the CEQA Guidelines, a ND shall be prepared if the proposed project would not have a significant effect on the environment. Based on the

available project information and the environmental analysis presented in this document, there is no substantial evidence that the proposed project would have a significant effect on the environment. It is proposed that a Negative Declaration be adopted in accordance with the CEQA Guidelines.

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## CHAPTER 2 – PROJECT DESCRIPTION

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### 2.1 INTRODUCTION

This Initial Study/Negative Declaration (IS/ND) has been prepared by the DPR to evaluate the potential environmental effects of the proposed Resource Protection through Erosion Stabilization (proposed project) at Anderson Marsh State Historic Park (AMSHP) located within the City of Clearlake, Lake County, California, to protect sensitive resources through erosion reduction (**Figures 1 and 2**). The proposed project consists of repairing the channel at four locations where the channel banks are over-steepened and erosional processes are accelerating bank sloughing (**Figure 3**).

### 2.2 PROJECT LOCATION

The Molesworth Channel (Molesworth Channel or channel) is located within AMSHP (38°56'18.88 N 122°37'58.06 W) at the base of the Upper Cache Creek Hydrologic Area, a steep watershed. The project site is located immediately upstream of the water discharge point into Clear Lake and extends east to Ridgeview Drive (**Figure 3**).

### 2.3 BACKGROUND AND NEED FOR THE PROJECT

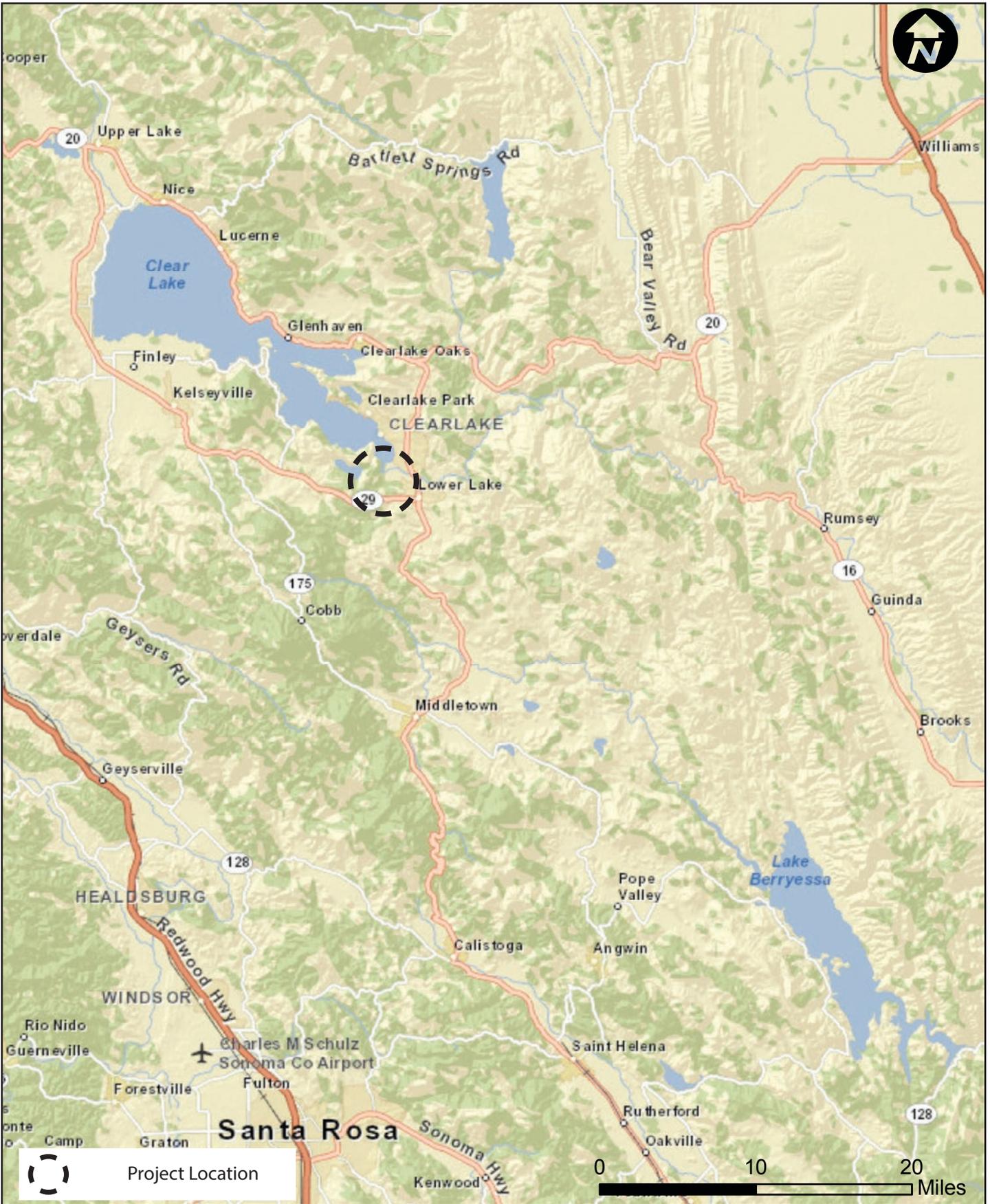
Molesworth Channel was constructed between 1958 and 1970, prior to State acquisition, and has been modified into a straight, roughly trapezoidal, ephemeral channel within AMSHP. Prior to development of the residential neighborhoods to the north and east, the channel flowed in a southerly direction where it emptied directly into Cache Creek, the sole outlet for Clear Lake. However, to aid stormwater movement away from the residences, the channel was straightened to flow west and drain directly into Clear Lake.

Analysis of Molesworth Channel erosion shows that vertical erosion was rapid in the newly constructed channel, but after vertical erosion stabilized in the 1980s, lateral erosion expanding the width of the channel and undermining its banks has caused extensive and ongoing damage to sensitive resources. Active erosion is attributable to the establishment of in-channel vegetation, which deflects flow to one or both sides of the channel, causing the scours. This pattern of erosion is enhanced by the relative resistance of the substrate to erosion, which redirects stream energy to the channel banks. DPR removed the vegetation as part of a resource protection project during Spring 2014. The proposed project would correct the over-steepened banks left by the lateral scours.

In addition, several ad-hoc trails have been formed as a result of pedestrians crossing the site or utilizing the dry channel to access the Clear Lake shore. The resulting erosion from these trails contributes to the sloughing of the banks and poses a potential risk to the sensitive resources and the proposed bank stabilization project.

Without this project, channel banks would continue to erode and further deteriorate the sensitive resources, violating the Department's mission to protect "...its most valued natural, cultural and historical resources..."

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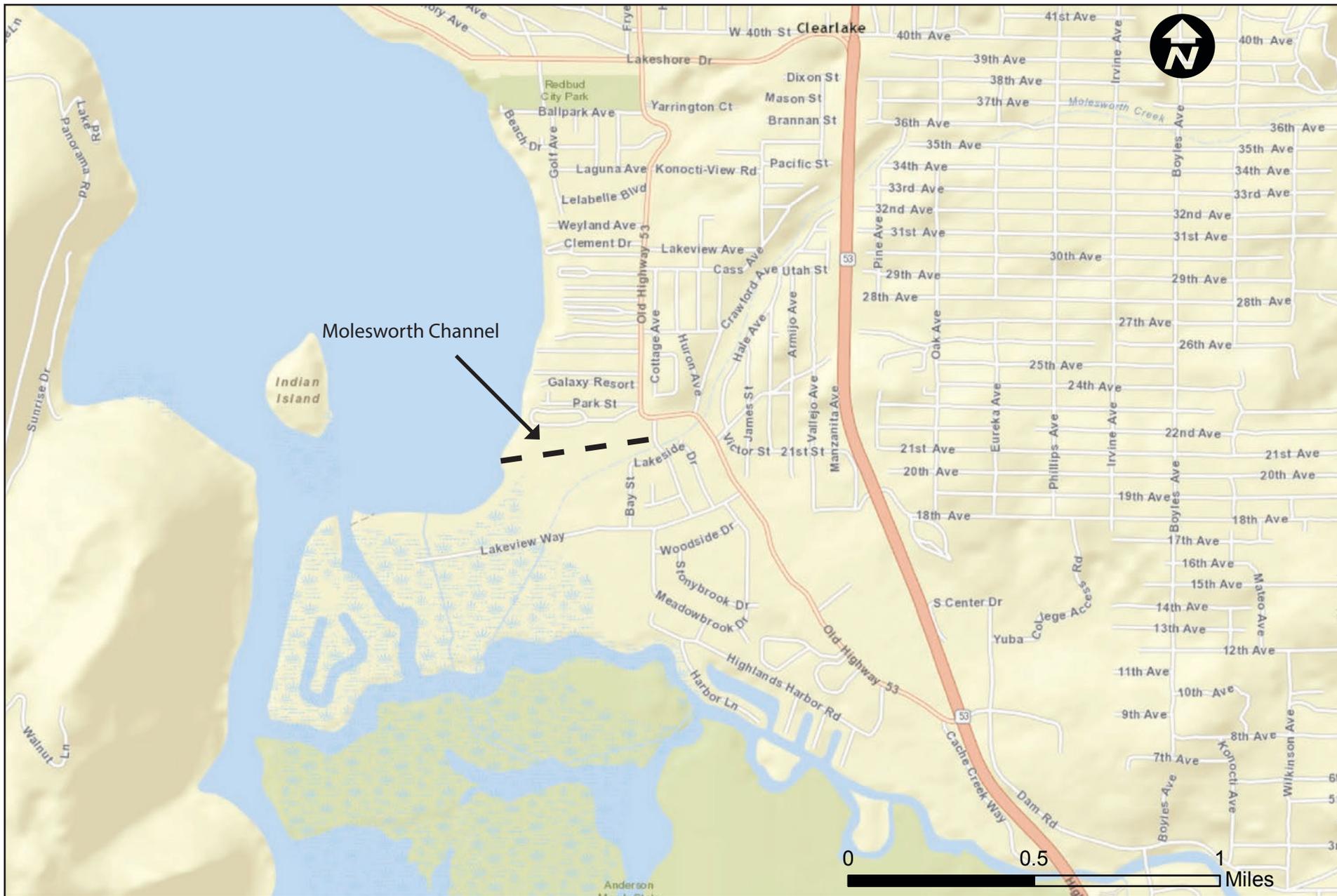


Vicinity Map

June 2014

Resource Protection through Erosion Stabilization Project  
 Molesworth Channel Anderson Marsh State Historic Park

Figure  
 1



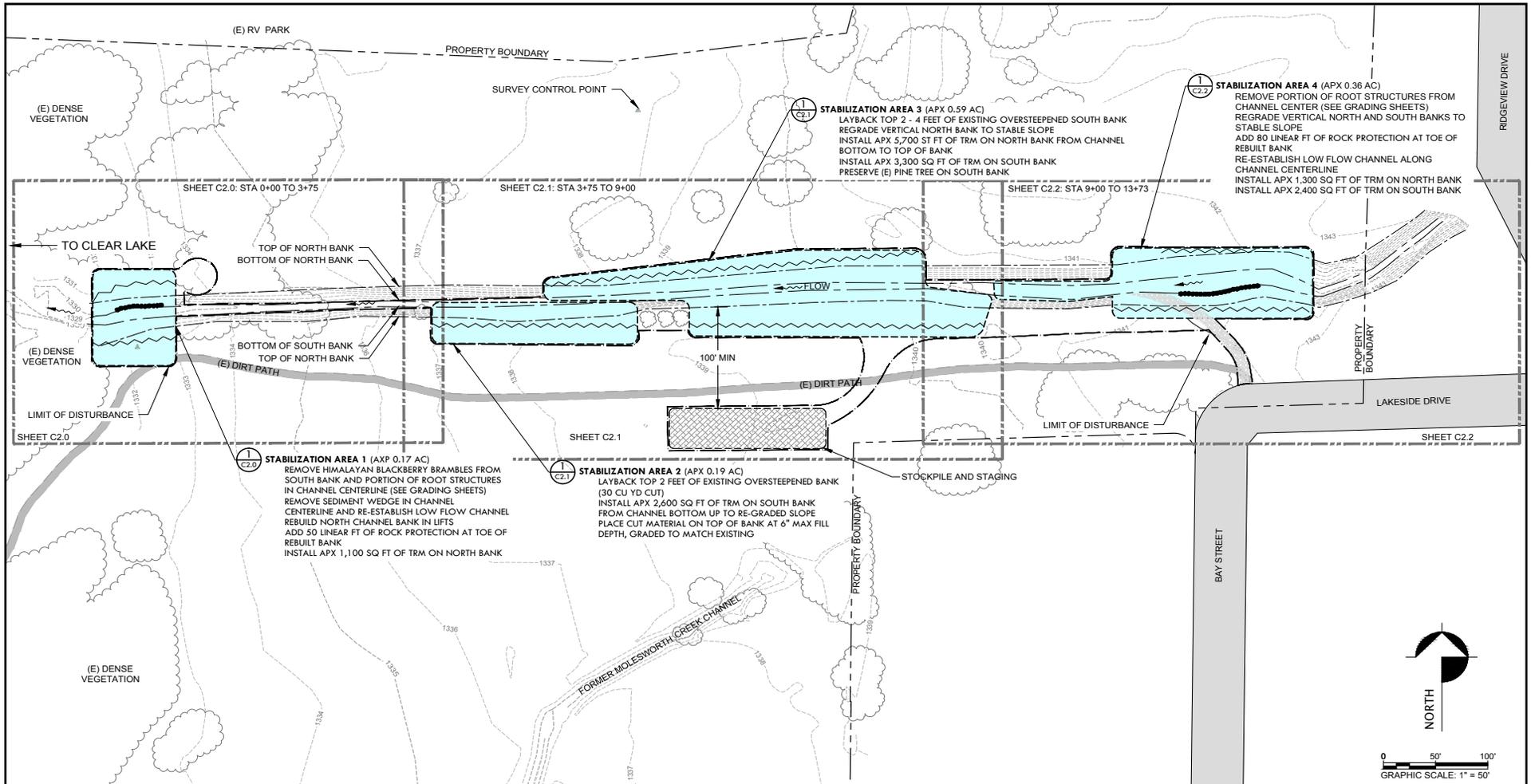
Location Map

June 2014

Resource Protection through Erosion Stabilization Project  
Molesworth Channel Anderson Marsh State Historic Park

Figure

2



DISTURBANCE AREA SUMMARY		
NAME	AREA (SQ FT)	AREA (ACRES)
STABILIZATION AREA 1	7,600	0.174
STABILIZATION AREA 2	8,120	0.186
STABILIZATION AREA 3	25,800	0.592
STABILIZATION AREA 4	15,600	0.358
SUB TOTAL AREA OF DISTURBANCE	57,120	1.31
STOCKPILE AND STAGING/SOIL DISPOSAL	6,000	0.1
CONSTRUCTION ACCESS	16,430	0.4
CONSTRUCTION ENTERENCE	1,450	0.03
TOTAL AREA OF DISTURBANCE	81,000	1.9



# Overall Site Improvement Plan

February 2015

Resource Protection through Erosion Stabilization Project  
 Molesworth Channel Anderson Marsh State Historic Park

Figure  
**3**

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## 2.4 PROJECT OBJECTIVES

The purpose of this project is to protect sensitive resources within Molesworth Channel using multiple methods to reduce the effects of erosion that have impacted, and continue to impact, the integrity and significance of sensitive resources. The project objectives include stabilizing discrete sections of the channel bank where the banks are over-steepened and erosional processes are accelerating bank sloughing and endangering resources.

The proposed project objectives are aligned with the mission of DPR: *“To provide for the health, inspiration, and education of the people of California by helping to preserve the state’s extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high quality outdoor recreation.”*

## 2.5 PROJECT DESCRIPTION

The purpose of this project is to reduce the effects of erosion that have impacted, and continue to impact, the integrity of a significant resource listed on the National Register Historic Places. Impacts to the significant sensitive resource would be minimized by stabilizing the banks of the Molesworth Channel, reducing erosion, thereby protecting sensitive resources. Project objectives include stabilizing discrete locations of the channel bank where the banks are over-steepened and erosional processes are accelerating bank sloughing.

Without this project, channel banks would continue to erode and potentially expose sensitive resources, violating the Department’s mission. The DPR proposes to stabilize critical, limited sections of the channel bank that are experiencing rapid erosion and adversely impacting sensitive resources. To minimize impacts to resources during project implementation, DPR has limited the stabilization measures to active erosion areas.

The 2014, *Data Recovery Plan for Archaeological Investigations at CA-LAK-656/H, Molesworth Channel Stabilization Project, Anderson Marsh State Historic Park, Northern Butte District*, prepared by Gregory G. White, Ph.D., and Patricia J. Mikkelsen, M.A. (Data Recovery Plan), prepared for The California Department of Parks and Recreation, provides specific project requirements that will be adhered to during project implementation. The Data Recovery Plan provides for long-term preservation of sensitive resources that are actively impacted due to on-going erosion. Stabilization of the channel banks will require ground disturbing activities; however, all ground disturbing activities will be conducted using excavation techniques designed to preserve and protect sensitive resources as described in the Data Recovery Plan.

The project team identified four discrete sections (Stabilization Areas 1 – 4) where channel bank stabilization, totaling approximately 57,120 square feet (**Figure 3**; project plans are included in **Appendix A**), would occur. The channel banks would be stabilized through treatment consisting of laying back channel bank slopes, installing turf reinforced

mats with soil backfill, re-vegetating with native tree and grass species, and installing temporary erosion control blankets.<sup>1</sup> The following presents the proposed improvements for each of the four stabilization areas, as well as work required for the stockpile/staging area:

Stabilization Area – 1 (approximately 0.17 acre)

- Remove Himalayan blackberry brambles from south bank and portions of root structures in channel centerline;
- Remove sediment wedge in channel centerline and re-establish low flow channel;
- Build north channel bank in lifts (i.e., stepped cuts);
- Add 50 linear feet of rock protection at toe of rebuilt bank; and
- Install approximately 1,100 linear feet of Turf Reinforced Mat (TRM) on north bank.

Stabilization Area – 2 (approximately 0.19 acre)

- Layback top two feet of existing oversteepened bank (30 cubic yard cut);
- Install approximately 2,600 square feet of TRM on south bank from channel bottom up to re-graded slope; and
- Place cut material on top of bank at 6” maximum fill depth, graded to match existing.

Stabilization Area – 3 (approximately 0.59 acre)

- Layback top 2 – 4 feet of existing oversteepened south bank;
- Regrade vertical north bank to stable slope;
- Install approximately 5,700 square feet of TRM on north bank from channel bottom to top of bank;
- Install approximately 3,300 square feet of TRM on south bank; and
- Preserve existing pine tree on south bank.

Stabilization Area – 4 (approximately 0.36 acre)

- Regrade vertical north and south banks to stable slope;
- Re-establish low flow channel along channel centerline;
- Add 80 linear feet of rock protection at toe of rebuilt bank;
- Install approximately 1,300 square feet of TRM on north bank; and
- Install approximately 2,400 square feet of TRM on south bank.

In total, approximately 57,120 square feet (1.31 acres) of improvements are proposed within Stabilization Areas 1 – 4. In addition, stockpile and staging/soil disposal would result in approximately 6,000 square feet (0.14 acre) of temporary disturbance. The soil

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<sup>1</sup> The rock used in rock protection areas is sized to withstand the velocities and shear stresses identified in the Hydrologic and Hydraulic Analysis prepared by Fall Creek Engineering; D50 = 12 inches. The rock will need to be imported to the site from a local quarry and meet the specifications for angularity and hardness. The rock will be installed per detail 5, sheet C5.0 in **Appendix A**. The TRM will be installed per detail 6, sheet C5.0 in **Appendix A**. The TRM will consist of Pyramat, a high performance turf reinforcement mat, which is a three-dimensional, lofty, woven polypropylene geotextile and specially designed for erosion control applications.

disposal area would measure approximately 150 foot by 40 foot where cut material would be disposed at a depth less than six inches. Proposed total quantities of cut and fill are 343 cubic yards and 343 cubic yards, respectively; no soil would be removed off site. Construction access and entrance to the site would result in approximately 16,430 square feet and 1,450 square feet of disturbance, respectively. The total area of disturbance would be approximately 81,000 square feet (1.9 acres).

In an effort to limit the potential damage caused by pedestrians crossing the newly installed stabilization measures, the project proposes to install a low, split rail fence planted with native California blackberry along the top of the bank on both sides of the channel. The fence height would be approximately three feet high. Once the blackberry is established, the fences would either be removed or remain in place.

## 2.6 PROJECT REQUIREMENTS

Under CEQA, the DPR has the distinction of being considered a Lead agency, a Responsible agency, and a Trustee agency. A lead agency is a public agency that has the primary responsibility for carrying out or approving a project and for implementing CEQA, and a Responsible agency is a public agency other than the lead agency that has responsibility for carrying out or approving a project and for complying with CEQA. A Trustee agency is a state agency having jurisdiction by law over natural resources affected by a project that are held in trust for the people of the State of California. With this distinction comes the responsibility to ensure that actions that protect sensitive resources are always implemented on every project. Therefore, DPR maintains a list of Project Requirements that are included in project design to reduce impacts to sensitive resources.

DPR has developed a list of Standard Project Requirements that are actions that have been standardized statewide for the purpose of avoiding significant project-related impacts to the environment in park units. From this list, standard project requirements are assigned, as appropriate to all projects (**Table 1**). For example, projects that include ground-disturbing activities, such as trenching, would always include standard project requirements addressing the inadvertent discovery of archaeological artifacts. However, for a project that replaces a roof on an historic structure, ground disturbance would not be necessary; therefore standard project requirements for ground disturbance would not be applicable and would not be assigned to the project.

DPR also makes use of specific project requirements. These are project requirements developed to address project impacts for projects that have unique issues; they would not typically be standardized for projects statewide. Any project-specific requirement are identified in **Table 1** below as “Specific Project.”

**Table 1. Standard and Specific Project Requirements**

<b>Standard and Specific Project Requirements</b>	
<b>Issue</b>	<b>Requirement</b>
<b>Air Quality</b>	
Standard Air Quality 1: Dust Control	<ul style="list-style-type: none"> <li>• During dry, dusty conditions, all active construction areas will be lightly sprayed with water, a dust suppressant, to reduce dust without causing runoff.</li> <li>• All trucks or light equipment hauling soil, sand, or other loose materials on public roads will be covered or required to maintain at least two feet of freeboard.</li> <li>• All gasoline-powered equipment will be maintained according to manufacturer's specifications, and in compliance with all State and federal requirements.</li> <li>• Paved streets adjacent to the Park will be swept at the end of each day, or as required, to remove excessive accumulations of silt and/or mud which could have resulted from project-related activities.</li> <li>• Excavation and grading activities will be suspended when sustained winds exceed 15 miles per hour (mph), instantaneous gusts exceed 25 mph, or when dust occurs from project-related activities where visible emissions (dust) cannot be controlled by watering or conventional dust abatement controls.</li> </ul>
<b>Biological Resources</b>	
Standard Biological Resources 1: Tree Protection	<ul style="list-style-type: none"> <li>• Any trenching within a “structural root zone” will be completed by hand; no roots two inches or larger in diameter will be cut or damaged.</li> <li>• No ground-disturbing activities will be allowed within five (5) times the diameter-at-breast-height (dbh) of trees that are to be retained, unless approved in advance by a DPR-approved biologist, forester, or certified arborist.</li> </ul>
Specific Project Biological Resources 2: Revegetation	<ul style="list-style-type: none"> <li>• To maintain genetic integrity, only plant stock collected within the vicinity of Molesworth Channel will be used for re-vegetation in the project area.  Revegetation of the slopes and planting of upland trees as detailed in Sheets C3.0 and C5.2 of the project 60% plans will be implemented as part of the project. The trees will be planted from local seeds collected on-site and planted per DPR policy. All success criteria will meet DPR Department Operations Manual (DOM) Chapter 0300; please refer to: <a href="http://www.parks.ca.gov/pages/22374/files/dom%200300%20natural%20resources.pdf">http://www.parks.ca.gov/pages/22374/files/dom%200300%20natural%20resources.pdf</a></li> </ul>
Standard Biological Resources 3:	<ul style="list-style-type: none"> <li>• All construction equipment shall arrive free and clear of any dirt or seeds to avoid introduction of invasive plants to the project area.</li> </ul>

## Standard and Specific Project Requirements

Issue	Requirement
Invasive Species	<ul style="list-style-type: none"> <li>All project activities that could spread non-native, invasive species to new locations will be subject to Best Management Practices developed by the Cal-IPC and available online at <a href="http://www.cal-ipc.org/ip/prevention/index.php">http://www.cal-ipc.org/ip/prevention/index.php</a>.</li> </ul>
Standard Biological Resources 4: Wildlife	<ul style="list-style-type: none"> <li>To prevent trapping of wildlife, all holes and trenches will be covered at the close of each working day with plywood or similar materials, or will include escape ramps constructed of earth fill or wooden planks; all pipes will be capped. A DPR-qualified biologist, or other staff trained by a DPR-qualified biologist will inspect trenches and pipes for wildlife at the beginning of each workday. If a trapped animal is discovered, they will be released in suitable habitat at least 100 feet from the project area.</li> </ul>
Standard Biological Resources 5: Nesting Raptors and Other Migratory Birds	<ul style="list-style-type: none"> <li>Contractor shall schedule construction activities between February 1 and August 31 (nesting season) only under the following conditions: <ul style="list-style-type: none"> <li>If nesting raptors are observed during DPR pre-construction breeding season surveys, the Contractor shall not work within the 200-foot buffer zone of the active nest until after the young have fledged and there is no evidence of a second attempt at nesting, as determined by a DPR-approved biologist; or</li> <li>If active migratory bird nests are located during DPR surveys, the Contractor shall not work within a minimum 50-foot radius buffer zone of the nest tree until the nest is vacated, juveniles have fledged, and there is no evidence of a second nesting attempt as determined by a DPR biologist.</li> </ul> </li> </ul>
Standard Biological Resources 6: Special-Status Bats	<ul style="list-style-type: none"> <li>To avoid and reduce impacts to special-status bat species, the contractor will schedule noise-generating work between May 1-August 31 (maternity season) only under the following conditions: Based on the results of these initial bat surveys, one or more of the following will occur: <ul style="list-style-type: none"> <li>If it is determined that bats are not present at the site, no action is required.</li> <li>If it is determined that bats are utilizing the site and may be impacted by the proposed project, the biologist will determine if disturbance will jeopardize a maternity roost or another type of roost (i.e., foraging, day, or night).</li> <li>If a single bat and/or only adult bats are roosting, exclusion techniques will be determined by the biologist and depend on the roost type; the biologist will prepare a management plan for DPR approval prior to the initiation of construction.</li> <li>If an active maternity roost is detected, work in the vicinity of the roost (buffer to be determined by biologist) will be</li> </ul> </li> </ul>

## Standard and Specific Project Requirements

Issue	Requirement
	<p>redirected to areas outside the buffer zone or postponed until the biologist monitoring the roost(s) determines that the young have fledged and are no longer dependent on the roost. The monitor will ensure that all bats have left the area of disturbance prior to initiation of disruptive construction activities.</p>
<b>Cultural Resources</b>	
<p>Standard Cultural Resources 1: General Cultural Standard Requirements</p>	<ul style="list-style-type: none"> <li>• Prior to the start of construction, a DPR-qualified cultural resources specialist will consult with the contractor and project manager to identify all resources that must be protected.</li> <li>• At the discretion of the DPR-qualified cultural resources specialist, mechanized vehicles on cultural resource sites will be restricted to a short term use of rubber tire tractors only. All such vehicles must enter and exit resource(s) via the same route of travel and are strictly prohibited from turning on the surface of site(s).</li> <li>• Prior to the start of construction, a DPR-qualified cultural resources specialist will train construction personnel in cultural resource identification and protection procedures.</li> <li>• A DPR-qualified cultural resources specialist will photo-document all aspects of the project before, during, and after construction and the photos will be added to historical records (archives) for the park.</li> <li>• Prior to the start of project and to the extent not already completed, a DPR-qualified cultural resources specialist will map and record all cultural features within the proposed Area of Potential Effects (APE) to a level appropriate to the Secretary of Interior Standards.</li> </ul>
<p>Standard Cultural Resources 2: Archaeologist's Standard Requirements</p>	<ul style="list-style-type: none"> <li>• Prior to the start of construction, a DPR-qualified cultural resources specialist will flag and/or fence all cultural resources not directly affected by the current project.</li> <li>• Archaeological data recovery will accomplish all project-related earth-moving within the boundaries of the site, and a DPR-qualified archaeologist will be present to monitor all construction activity.</li> <li>• If ground disturbing activities uncover unanticipated cultural resources (including, but not limited, to dark soil containing shellfish, bone, flaked stone, groundstone, or deposits of historic ash), the Contractor will temporarily halt or divert work within the immediate vicinity of the find until a DPR-qualified cultural resources specialist evaluates the find and determines the appropriate treatment and disposition of the cultural resource.</li> <li>• The Contractor will notify the DPR Northern Service Center or District Cultural Resource Specialist a minimum of three weeks prior to the start of ground-disturbing work to schedule archaeological</li> </ul>

<b>Standard and Specific Project Requirements</b>	
<b>Issue</b>	<b>Requirement</b>
	monitoring, unless other arrangements are made in advance.
<b>Hazards and Hazardous Materials</b>	
Standard Hazards 1: Spill Prevention	<ul style="list-style-type: none"> <li>• Prior to the start of on-site construction activities, the Contractor will inspect all equipment for leaks and regularly inspect thereafter until equipment is removed from the project site. All contaminated water, sludge, spill residue, or other hazardous compounds will be contained and disposed of outside the boundaries of the site, at a lawfully permitted or authorized destination. All vehicle repair (except emergencies) will occur outside Park boundaries.</li> </ul>
Standard Hazards 2: Fire Safety	<ul style="list-style-type: none"> <li>• Prior to the start of construction, the Project Manager or the Contractor will prepare a fire safety plan for District Superintendent approval.</li> <li>• Contractor will require that all equipment be equipped with spark arrestors or turbo-charging (eliminates sparks in exhaust).</li> <li>• At the end of each workday, project staff will park equipment over asphalt, concrete or bare soil to reduce chance of fire.</li> <li>• All project crews will park vehicles away from flammable material(s).</li> </ul>
<b>Hydrology/Water Quality</b>	
Standard Hydrology 1: Water Quality	<ul style="list-style-type: none"> <li>• Prior to the start of construction involving ground-disturbing activities, the Project Engineer will prepare and submit a Storm Water Pollution Prevention Plan (SWPPP) for DPR approval that identifies temporary Best Management Practices (BMPs) (e.g., tarping of any stockpiled materials or soil; use of wildlife-friendly silt fences, straw bale barriers, fiber rolls, etc.) and permanent (e.g., structural containment, preserving or planting of vegetation) BMPs for use in all construction areas to reduce or eliminate the discharge of soil, surface water runoff, and pollutants during all excavation, grading, trenching, repaving, or other ground-disturbing activities. The SWPPP will include a Spill Prevention and Response Plan (SPRP) to provide protection to on-site workers, the public, and the environment from accidental leaks or spills of vehicle fluids or other potential contaminants.</li> <li>• All construction activities will be suspended during heavy precipitation events (i.e., at least 1/2-inch of precipitation in a 24-hour period) or when heavy precipitation events are forecast.</li> </ul>
<b>Noise</b>	
Standard Noise 1: Noise Reduction	<ul style="list-style-type: none"> <li>• Internal combustion engines used for project implementation will be equipped with a muffler of a type recommended by the manufacturer. Equipment and trucks used for Project-related activities will utilize the best available noise control techniques (e.g.,</li> </ul>

## Standard and Specific Project Requirements

Issue	Requirement
	<p>engine enclosures, acoustically attenuating shields or shrouds, intake silencers, ducts, etc.) whenever necessary.</p> <ul style="list-style-type: none"> <li>• The Contractor will locate stationary noise sources and staging areas as far from potential sensitive noise receptors, as possible. If they must be located near potential sensitive noise receptors (e.g., schools, residences, day cares, hospitals, etc.), stationary noise sources will be muffled or shielded, and/or enclosed within temporary sheds.</li> <li>• Construction activities will generally be limited to the daylight hours, Monday – Friday. If work during weekends or holidays is required, no work generating noise will occur on those days before 8:00 a.m. or after 5:00 p.m.</li> </ul>

### 2.7 PROJECT IMPLEMENTATION

Construction would occur during the dry season, and continue for approximately two to three months. Work would occur only during daylight hours and would be scheduled to incur the least amount of impact to visitors; however, weekend work could be implemented to accelerate construction or address emergency or unforeseen circumstances. During construction, pedestrian traffic would be directed around the work zone for the safety of visitors and staff.

Construction of the proposed project would involve data recovery as detailed in the 2014 Data Recovery Plan through hand removal of the soil within the boundaries of the site with a DPR-qualified archaeologist on site during all construction activities. Some minor use of heavy equipment, outside of the eligible portions of the site, would be employed.

Most equipment would be transported to the site and remain until associated work is completed. Transport vehicles for material or equipment delivery trucks, and crew vehicles would also be present intermittently at the site.

In addition, security measures would be installed at the site to protect equipment and the resources.

Best Management Practices (BMPs) have been incorporated into this project design to ensure that the sensitive resources in and around the project area are adequately protected during and after construction. The BMPs discussed in this document and used in the implementation of this project are derived from the engineering methods used to stabilize the bank as well as from the California Stormwater Quality Association's (CSQA) Stormwater Best Management Practices Construction Handbook. Temporary BMPs would be used to keep sediment on-site throughout the duration of the project; during construction, BMPs would be checked daily, maintained, and modified as needed. Any potential sediment runoff would be spread in the soil disposal areas and stabilized with erosion control as indicated in detail 1, sheet C6.0 in **Appendix A**. The project includes installing turf reinforced mats with soil backfill, re-vegetating with native tree and grass

species, and installing temporary erosion control blankets, which would stabilize the site and minimize erosion. The DPR has consistently referenced CSQA BMPs and has identified them as an acceptable standard for use in all State Parks.

## 2.8 VISITATION

The AMSHP, located in northern California 130 miles northeast of San Francisco, is in an area with great recreational appeal that draws visitors from across the nation. The most popular recreation activities at the park unit include bird watching, nature study/observation, walking/hiking/picnicking, fishing, ranch tours, and special events. **Table 2** depicts the annual visitor attendance at AMSHP since 2003.

**Table 2. Annual visitor attendance at Anderson Marsh State Historic Park**

Fiscal Year	Paid Day Use	Free Day Use	Overnight Camping	Total Attendance
2003-2004	8,157	26,131	0	34,288
2004-2005	8,205	28,349	0	36,554
2005-2006	3,777	29,155	0	32,932
2006-2007	6,063	37,436	0	43,499
2007-2008	7,999	15,325	0	23,324
2008-2009	3,760	2,082	0	5,842
2009-2010	5,244	1,482	0	6,726
2010-2011	1,495	719	0	2,214
2011-2012	10,053	2,507	0	12,560
Total Attendance	54,753	143,186	0	197,939
Average Yearly Attendance	66,083	15,909		21,993

*Source: State Parks System Statistics*

## 2.9 CONSISTENCY WITH LOCAL PLANS AND POLICIES

The proposed project is consistent with the Anderson Marsh State Historic Park General Plan. Please refer to **Section X, Land Use and Planning** for more detailed information.

## 2.10 DISCRETIONARY APPROVALS

This IS/ND is an informational document for both agency decision-makers and the public. The State of California Department of Parks and Recreation is the Lead Agency responsible for certification of this Initial Study. The project would be subject to other

laws and applicable agency reviews, including, but not limited to: California Public Resources Code 5024 and 5024.5; the Federal and State Endangered Species Acts; Clean Water Act; Migratory Bird Treaty Act; and California Department of Fish and Game Code.

The project would require a permit from the U.S. Army Corps of Engineers (USACE); therefore, project would also require compliance with Section 106 of the National Historic Preservation Act. In compliance with Section 106, the DPR and Far Western Anthropological Research Group, Inc. consulted with the Koi Nation of California, Big Valley Rancheria of Pomo Indians, Elem Indian Colony of Pomo, and Middletown Rancheria of Pomo Indians.

California State Parks retains approval authority for the proposed Resource Protection through Erosion Stabilization Project at AMSHP. The project meets goals presented in the General Plan (Anderson Marsh State Historic Park General Plan, 1988).

Below is a general list of federal, state, and local agencies that could have jurisdiction over the project and could issue permits in connection with site development. This list is not considered exhaustive and additional agencies and/or jurisdictions could have permitting authority.

#### **Federal Agencies**

- United States Army Corps of Engineers (USACE) – Compliance with Section 7 (Endangered Species Act), Section 106 (National Historic Preservation Act), and Section 404 (Clean Water Act)

#### **State Agencies**

- Central Valley Regional Water Quality Control Board –Construction General Permit/Notice of Intent and Section 401 (Clean Water Act)
- California Department of Fish and Wildlife – Section 1602, Streambed Alteration Agreement (Fish and Game Code)

The DPR would perform all necessary reviews and acquire all necessary permits prior to implementing any project component requiring regulatory review.

### **2.11 RELATED PROJECTS**

The following projects are related to the proposed Resource Protection through Erosion Stabilization Project at AMSHP:

- Molesworth Channel Vegetation Removal, Anderson Marsh State Historic Park (Streambed Alteration Agreement #1600-2014-0014-R2) - Several trees from within the center of the channel were removed, above ground level, on May 8, 2014, to reduce deflection of water around the trees that has been contributing to the sloughing of the banks. Tree removal was completed prior to the 2014/2015 rainy season to reduce bank sloughing until the proposed project can be implemented.

- An emergency access gate is proposed to be installed approximately 330 feet north of Molesworth Channel at the parks boundary to allow emergency vehicles to access the area. This project would not directly affect Molesworth Channel but may redirect foot traffic.
- The City of Clearlake obtained a Right-of-Entry permit from DPR to conduct clearing within a ditch, directly south of Molesworth Channel, as the ditch conveys storm water away from the city towards Cache Creek.
- A trails project to comply with the American with Disabilities Act has been proposed for the park. This project is currently in the scoping phase and is to the south of Cache Creek.

A 10 Year Vegetation Management Plan is being prepared for AMSHP to restore the native grassland, south of Cache Creek; implementation will begin in 2014/2015. The plan includes a series of prescribe burns in coordination with local and State firefighting agencies, which may temporarily impact air quality. Other methods include mechanical and chemical control of invasive plant species, followed by planting/reseeding with native seed stock.

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## CHAPTER 3 – ENVIRONMENTAL CHECKLIST

<b>PROJECT INFORMATION</b>	
1.	Project Title: Resource Protection through Erosion Stabilization Project
2.	Lead Agency Name & Address: California Department of Parks & Recreation
3.	Contact Person & Phone Number: Srikanth Rao, 916-445-8885
4.	Project Location: Anderson Marsh State Historic Park
5.	Project Sponsor & Address: California Department of Parks & Recreation Northern Service Center One Capitol Mall, Suite 410 Sacramento, California 95814
6.	General Plan Designation: Open Space
7.	Description of Project: The proposed project would take place at the Molesworth Channel within the Anderson Marsh State Historic Park and would consist of stabilizing discrete sections of the channel bank where the banks are over-steepened and erosional processes are accelerating bank sloughing and endangering resources.
8.	Surrounding Land Use & Setting: Refer to Chapter 3 of this Document ( <b>Section X, Land Use and Planning</b> )
9.	Approval Required from Other Public Agencies: Refer to Chapter 2 of this document ( <b>Section 2.10, Discretionary Approvals</b> )

**ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED**

If implemented as written, this project could result in a "Potentially Significant Impact" involving at least one area of the environmental factors checked below, as indicated in the Initial Study on the following pages.

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Aesthetics               | <input type="checkbox"/> Agricultural Resources          | <input type="checkbox"/> Air Quality                        |
| <input type="checkbox"/> Biological Resources     | <input type="checkbox"/> Cultural Resources              | <input type="checkbox"/> Geology/Soils                      |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards and Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality            |
| <input type="checkbox"/> Land Use/Planning        | <input type="checkbox"/> Mineral Resources               | <input type="checkbox"/> Noise                              |
| <input type="checkbox"/> Population/Housing       | <input type="checkbox"/> Public Services                 | <input type="checkbox"/> Recreation                         |
| <input type="checkbox"/> Transportation/Traffic   | <input type="checkbox"/> Utilities/Services Systems      | <input type="checkbox"/> Mandatory Findings of Significance |

**DETERMINATION**

On the basis of this initial evaluation:

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

I find that although the original scope of the proposed project **COULD** have had a significant effect on the environment, there **WILL NOT** be a significant effect because revisions/mitigations to the project have been made by or agreed to by the applicant. A **MITIGATED NEGATIVE DECLARATION** will be prepared.

I find that the proposed project **MAY** have a significant effect on the environment and an **ENVIRONMENTAL IMPACT REPORT** or its functional equivalent will be prepared.

I find that the proposed project may have a "potentially significant impact" or "potentially significant unless mitigated impact" on the environment. However, at least one impact has been adequately analyzed in an earlier document, pursuant to applicable legal standards, and has been addressed by mitigation measures based on the earlier analysis as described in the report's attachments. An **ENVIRONMENTAL IMPACT REPORT** is required, but it will analyze only the impacts not sufficiently addressed in previous documents.

I find that although the proposed project could have had a significant effect on the environment, all potentially significant effects have been adequately analyzed in an earlier EIR or Negative Declaration, pursuant to applicable standards, and have been avoided or mitigated, pursuant to an earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project. Therefore, all impacts have been avoided or mitigated to a less-than-significant level and no further action is required.

Patricia DuMont  
Environmental Coordinator

2.10.15  
Date

## EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers, except “No Impact”, that are adequately supported by the information sources cited. A “No Impact” answer is adequately supported if the referenced information sources show that the impact does not apply to the project being evaluated (e.g. the project fall outside a fault rupture zone). A “No Impact” answer should be explained where it is based on general or project specific factors (e.g. the project will not expose sensitive receptors to pollutants, based on a project specific screening analysis).
2. All answers must consider the whole of the project related effects, both direct and indirect, including off-site, cumulative, construction, and operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, the checklist answers must indicate whether that impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate when there is sufficient evidence that a substantial or potentially substantial adverse change may occur in any of the physical conditions within the area affected by the project that cannot be mitigated below a level of significance. If there are one or more “Potentially Significant Impact” entries, an Environmental Impact Report (EIR) is required.
4. A “Mitigated Negative Declaration” (Negative Declaration: Less Than Significant with Mitigation Incorporated) applies where the incorporation of mitigation measures, prior to declaration of project approval, has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact with Mitigation”. The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level.
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier IER (including a General Plan) or Negative Declaration [CCR Guidelines for the Implementation of CEQA, §15063(c)(3)(D)].  
References to an earlier analysis should:
  - a) Identify the earlier analysis and state where it is available for review.
  - b) Indicate which effects from the environmental checklist were adequately analyzed in the earlier document, pursuant to applicable legal standards, and whether these effects were adequately addressed by mitigation measures included in that analysis.
  - c) Describe the mitigation measures in this document that were incorporated or refined from the earlier document and indicate to what extent they address site-specific conditions for this project.
6. Lead agencies are encouraged to incorporate references to information sources for potential impacts into the checklist or appendix (e.g. general plans, zoning ordinances, biological assessments). References to a previously prepared or outside document should include an indication of the page or pages where the statement is substantiated.
7. A source list should be appended to this document. Sources used or individuals contacted should be listed in the source list and cited in the discussion.
8. Explanation(s) of each issue should identify:
  - a) the criteria or threshold, if any, used to evaluate the significance of the impact addressed by each question **and**
  - b) the mitigation measures, if any, prescribed to reduce the impact below the level of significance.

## I. AESTHETICS

### ENVIRONMENTAL SETTING

According to the City of Clearlake 2040 General Plan Update Draft EIR (Clearlake General Plan Draft EIR), there are no officially designated scenic vistas or view corridors in the City of Clearlake (City), and the *Preferred Growth Scenario* of the *City of Clearlake 2040 General Plan Update* does not identify any specific vistas or view corridors for special protection in the future. Additionally, there are no officially State-designated scenic highways in or adjacent to the City or the AMSHP.

The AMSHP General Plan identifies the two major visual elements within the park unit as Anderson Flat and Anderson Marsh. Anderson Flat is a broad, open valley bordered on the north by Cache Creek and on the south by an oak-studded ridge. The open, expansive flat, occasionally studded with stately oaks, is a sharp contrast to the surrounding steep topography, dense vegetation, and urbanized environment. The AMSHP General Plan describes the view of the flat approaching the park from the north on Highway 53 as extremely scenic.

Anderson Marsh is a large expanse of lush, green, aquatic vegetation and open water. Variations in water level, seasonal changes in the color and height of vegetation, and the abundance of bird species all combine to make the marsh an ever-changing scenic area. Other natural features that contribute to the visual quality of the unit include Lewis Ridge west of the flat, the lush riparian woodland along Cache Creek adjacent to the marsh, and the dense oak forest on Slater Island. These features screen much of the rest of the park unit from nearby urban developments.

The AMSHP General Plan also describes features that detract from the unit and its visual character, including Highway 53 and residential development on the north side of Cache Creek. In addition, the dirt roads and scars from vehicle activity in the North Flat (the area north of Slater Island where Molesworth Creek channel is located) are negative visual features.

The proposed project site is located in the northern portion of the unit in the North Flat adjacent to urban development and is not located within any of the scenic areas described above. The majority of the project site consists of relatively flat, non-native grassland bisected east to west by a constructed drainage channel approximately 30 feet wide and 10 feet deep. The bed and bank of the Molesworth Channel is relatively consistent throughout the evaluation area having a trapezoidal shape, with the bed relatively flat and the bank sloped at approximately 2:1. The top of bank meets a flat field on both sides of the channel and the vegetation is fairly consistent with that found in the surrounding non-native grassland. The bed of the channel is nearly unvegetated. The channel transitions into riparian habitat at the westernmost portion of the project adjacent to Clear Lake.

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## DISCUSSION

- a) The proposed project consists of erosion stabilization within the Molesworth Channel in the AMSHP. Due to the lack of officially designated scenic vistas or view corridors in the area, the proposed project will have no impact on scenic vistas.
- b) State Highway 53 runs north-south through the center of the City and bisects the eastern portion of the park unit. This State highway is listed as Eligible to become an Officially Designated Scenic Highway contingent upon completion of an application and adoption of a Corridor Protection Program by the City and approval by Caltrans. However, the highway is not officially listed and there is no interest by the City in pursuing this designation for Highway 53. There are no officially State-designated scenic highways in or adjacent to the City or AMSHP. Therefore, the proposed project would have no impact on any scenic resources visible from a designated scenic highway.
- c) The proposed project involves bank stabilization along the channel consisting of vegetation removal, placement of rock protection, installation of turf reinforced mat, regrading portions of the channel, and revegetation. No new development is proposed. The construction activities may temporarily disturb the existing visual character along the channel; however, these activities would be short-term and temporary. Once construction is complete, native revegetation would occur and cover the stabilization treatment, thus enhancing the visual quality of the area. Therefore, this impact is considered less than significant and no mitigation is required.
- d) The project does not propose any new development and consists of construction activities that would occur during daylight hours. During proposed project

construction, there would be temporary security lighting used and the possibility of a camp host with night light on-site. No light sources would be added as part of the project. No new nighttime lighting or glare would result from the project. Therefore, this impact is considered less than significant and no mitigation is required.

## II. AGRICULTURAL AND FOREST RESOURCES

### ENVIRONMENTAL SETTING

The agriculture, forestry, and fishing sector accounts for 4 percent of total economic activities in the City. The existing agricultural parcels are primarily located along the northern boundary of the City and are not located within the AMSHP. There are no lands under the Williamson Act within the City or the AMSHP.

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert prime farmland, unique farmland, or farmland of statewide importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the Calif. Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220g), timberland (as defined by Public Resources Code Section 4526) or timberland zoned Timberland Production (as defined by Government Code Section 51104g)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

\* In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997)

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
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prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

**DISCUSSION**

a-e) The proposed project does not affect any identified agriculture resources, land identified for potential agricultural production, lands zoned for agricultural use, or lands under a Williamson Act contract, or as protected by the federal Farmland Protection Policy Act. The site also does not have any identified forest land use, nor land identified for potential timberland production or use. Therefore, the proposed project would have no impacts to agricultural or forest resources.

**III. AIR QUALITY**

**ENVIRONMENTAL SETTING**

The Lake County Air Basin is comprised of a single air district, the Lake County Air Quality Management District (LCAQMD), and contains all of Lake County, including the City and the AMSHP. The air basin is a federally and state recognized geographical area.

According to the LCAQMD's 2012 Smoke Management Plan, synoptic weather patterns typical of the northern California intermountain coastal climate dominate the Lake County Air Basin. The Pacific high-pressure system and thermal low-pressure conditions over the Great Basin interact during the summer to create predominantly westerly wind conditions. Winters are dominated by northwesterly winds associated with winter storms.

The California Air Resources Board (CARB) designates a status for regional air basins as being in attainment or nonattainment with State air quality standards. The Federal Environmental Protection Agency (EPA) provides the designation for National standards. State designations are reviewed annually while the National designations are reviewed when either the standards change, or when an area requests that they be re-designated due to changes in the area's air quality. Most designations are made by regional air basin, but in some cases designations are made at the county level. Designations are made by pollutant according to the following categories:

**Attainment** – Air quality in the area meets the standard.

**Nonattainment** – Air quality in the area fails to the applicable standard.

**Unclassified** – Insufficient data to designate area or designations have yet to be made.

**Attainment/Unclassified** – An EPA designation which, in terms of planning implications, is essentially the same as Attainment.

Nonattainment designations are of most concern because they indicate that unhealthy levels of the pollutant exist in the area, which typically triggers a need to develop a plan to achieve the applicable standard.

The County was recognized by the American Lung Association in 2014 as being the cleanest county in the nation for annual particulate average concentration. The Lake County Air Basin is one of only nine regions in California to have never exceeded the maximum ozone standard, and the only air basin to meet the standard for visibility reducing particles. As shown in **Table 3**, the City is currently in attainment of all state and federal Ambient Air Quality Standards (AAQS). The Lake County Air Basin is currently designated as in attainment for the State 24-hour and annual average PM<sub>10</sub> standards, as well as the State annual average PM<sub>2.5</sub> standard.

**Table 3. Clearlake Federal and State Air Quality Attainment Status, 2011**

Pollutant	State Status	National Status
Ozone	Attainment	Unclassified/Attainment
PM <sub>10</sub>	Attainment	Unclassified
PM <sub>2.5</sub>	Attainment	Unclassified/Attainment
Carbon Monoxide	Attainment	Unclassified/Attainment
Nitrogen Monoxide	Attainment	Unclassified/Attainment
Sulfur Dioxide	Attainment	Unclassified/Attainment
Sulfates	Attainment	
Lead	Attainment	Unclassified/Attainment

Source: CARB, 2012

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan or regulation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Expose sensitive receptors to substantial pollutant concentrations (e.g. children, the elderly, individuals with compromised respiratory or immune systems)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## DISCUSSION

a) The LCAQMD has not published an air quality management plan. Therefore, the proposed project would not conflict with, or obstruct the implementation of, a local air quality management plan. The proposed project would have no impact on any local air quality management plans.

b) Temporary impacts to air quality may occur from the generation of air pollutant emissions and dust during construction. The installation of the proposed erosion stabilization treatments would be manually excavated and construction activities would require minimal use of heavy equipment. Therefore, it is assumed that construction-related vehicle traffic and dust would be the primary emissions sources at the project site. Construction vehicles and associated worker commute trips, as well as manual excavation activities, have the potential to generate a small amount of fugitive particles and diesel exhaust that could result in an increase in criteria pollutants during construction activities and could cause elevated levels of ozone and inhalable particulates. Construction vehicles would not operate continuously, thereby causing intermittent emissions.

The basin does not have any current or projected air quality violations (CARB, 2013). As none of the work proposed would exceed the impact significance criteria and due to the temporary nature of the construction activities, minimal operation of heavy machinery, and implementation of BMPs and Standard Project Requirements (Air Quality 1) from Chapter 2, potential impacts to air quality would be less than significant and no mitigation is required.

The proposed project would not result in a change in operational criteria pollutant emissions because it would not introduce any new permanent sources of emissions.

c) The LCAQMD is currently in attainment of all relevant state and national standards, as shown above in **Table 3**. Therefore, the proposed project would not result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in non-attainment.

d-e) Generally, residences, as well as schools, are considered to be “sensitive receptors” in relation to air quality issues. The closest sensitive receptors in the project vicinity include the residences to the north and east approximately 130-150

feet away from the proposed project site. Construction activities may generate pollutant concentrations and odors that are objectionable to some persons. As described above, the construction of the proposed project would involve minimal heavy equipment use and activities would be short-term and temporary. Odors potentially generated by the construction activities would be short-term and temporary, and would not cause a violation of any CO, PM<sub>10</sub>, or toxic air contaminant standards. Therefore, this is considered a less than significant impact and no mitigation is required.

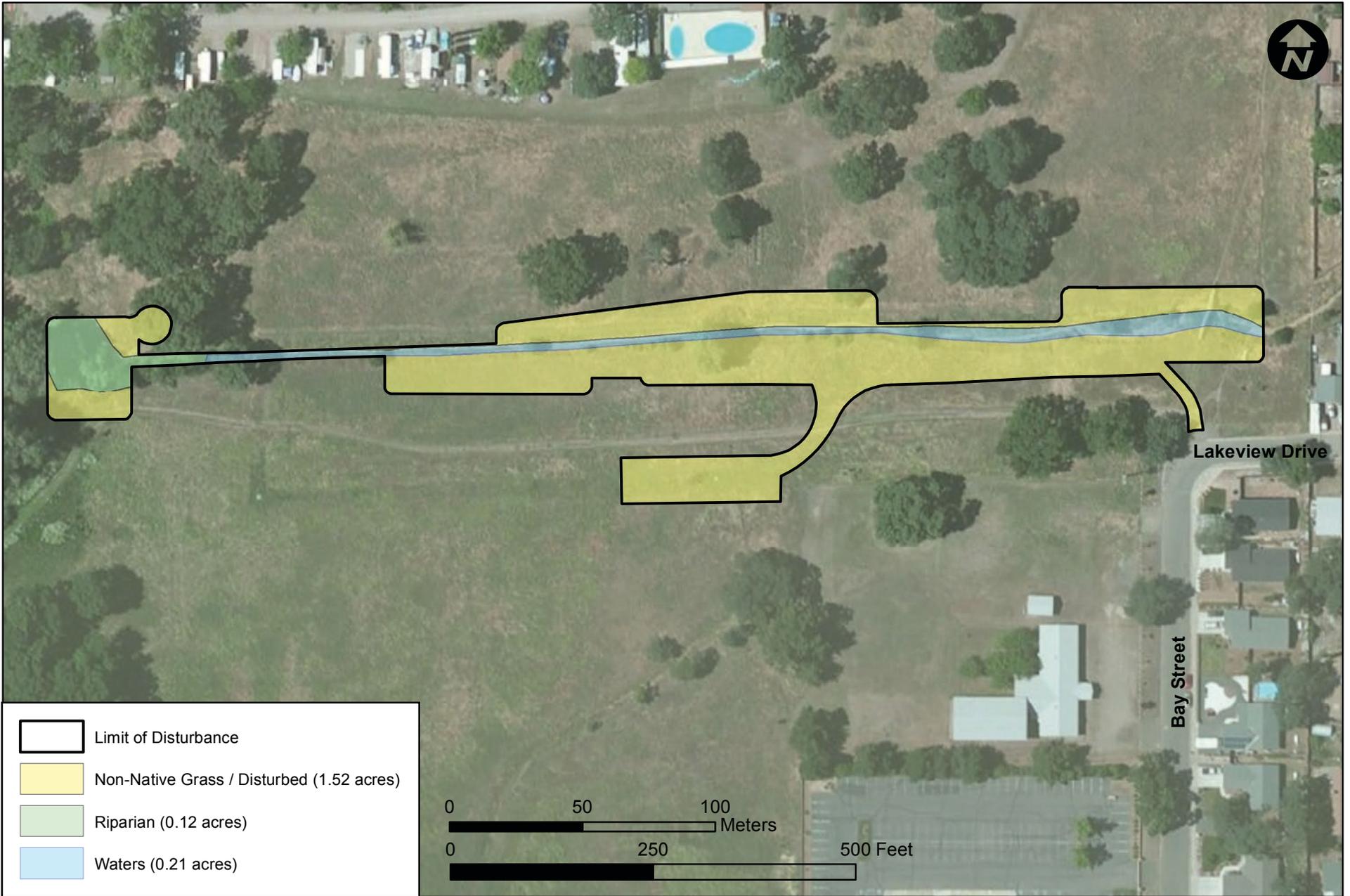
## IV. BIOLOGICAL RESOURCES

### ENVIRONMENTAL SETTING

Denise Duffy & Associates, Inc. (DD&A) prepared a Biological Report for the proposed project (**Appendix B**). The emphasis of the study was to describe existing biological resources within and surrounding the project site, identify any special-status species and sensitive habitats within the project area, assess potential impacts that may occur to biological resources, and recommend appropriate avoidance and minimization measures to reduce those impacts in accordance with CEQA and potential permitting requirements. In addition, a wetland delineation was performed for the proposed project to determine the extent of potentially jurisdictional Waters of the U.S. DD&A prepared a wetland delineation report that is included as **Attachment 5** of **Appendix B**.

DD&A biologists conducted a reconnaissance-level survey on April 24, 2014, to identify sensitive habitats and evaluate the presence or potential presence of special-status plant and wildlife species. The project site was surveyed for botanical resources following the applicable guidelines outlined in: *Guidelines for Conducting and Reporting Botanical Inventories for Federally listed, Proposed and Candidate Plants, Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*, and *CNPS Botanical Survey Guidelines*.

There are three habitat types within the project boundaries: non-native grassland, Waters of the U.S. (waters), and riparian (**Figure 4**). The majority of the project site consists of relatively flat, non-native grassland bisected east to west by a constructed drainage channel approximately 30 feet wide and 10 feet deep. The bed and bank of the Molesworth Channel is relatively consistent throughout the evaluation area having a trapezoidal shape, with the bed relatively flat and the bank sloped at approximately 2:1. The top of bank meets a flat field on both sides of the channel. The vegetation found on the bank is fairly consistent with that found in the surrounding field and consists of non-native grassland. The bed of the channel constitutes waters intermittently and is nearly unvegetated. The channel transitions into riparian habitat at the westernmost portion of the project adjacent to the lake.



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The non-native grassland within the evaluation area appears highly disturbed as the result of land use history such as the excavation and maintenance of the channel. The non-native grassland on the channel slope and adjacent field is dominated by annual, invasive grass and forb species such as soft chess (*Bromus hordeaceus*), wild oat (*Avena fatua*), and yellow star thistle (*Centaurea solstitialis*). The bed of the channel is unvegetated except for sparsely occurring plants including individuals of perennial rye grass (*Lolium perenne*), spreading rush (*Juncus patens*), Carex (*Carex* sp.), and curly dock (*Rumex crispus*). The riparian portion of the project site is dominated by an over story of Fremont's cottonwood (*Populus fremontii* ssp *fremontii*) and valley oak (*Quercus lobata*) with an understory of poison oak (*Toxicodendron diversilobum*), English ivy (*Hedera helix*) and Himalayan blackberry (*Rubus armeniacus*).

Along some of the sloped channel banks several tree species are present, including: box elder (*Acer negrundo*), gray pine (*Pinus sabiniana*), Fremont's cottonwood, willow (*Salix* sp.), and valley oak.

## **Plants**

No special-status plants are documented to occur within the AMSHP. No special-status plant species were identified during the site survey, and none are expected to occur due to lack of appropriate habitat.

## **Wildlife**

No special-status wildlife species were observed during the site visit. However, there is a historic occurrence of the Western yellow-billed cuckoo within the riparian habitat associated with the westernmost portion of the project site from 1973. There are two special-status fish species known to occur adjacent to the project site in Clear Lake: the Sacramento perch and Clear Lake hitch. In addition, there is potential nesting habitat for raptors and other protected migratory bird species within and adjacent to the project site and potential roosting habitat for several bat species adjacent to the project site, including the silver-haired bat, western red bat, long-eared myotis bat, and the fringed myotis bat. A narrative of each of these species is provided below. No other special-status wildlife species are likely to be present within the project site due to a lack of appropriate habitat.

### Western Yellow-Billed Cuckoo

This species inhabits extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, slow-moving watercourses, backwaters, or seeps. Willow is almost always a dominant component of the vegetation.

#### *Species Presence within the Project Site:*

Suitable habitat is present for this species in the riparian habitat within and adjacent to the westernmost portion of the project site. There is a CNDDDB occurrence that includes the project site; however, the CNDDDB only notes one sighting from 1973.

### Sacramento Perch

Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. This species prefers warm water conditions. Aquatic vegetation is essential for the young. This species tolerates a wide range of physio-chemical water conditions.

*Species Presence within the Project Site:*

No suitable habitat is present within the project site; however, the nearest California Natural Diversity Database (CNDDDB) occurrence is approximately 0.02 mile from project site within Clear Lake, which is intermittently hydrologically connected with the Molesworth Channel.

Clear Lake Hitch

This species is found only in Clear Lake, and associated ponds. It spawns in streams flowing into Clear Lake. Adults of this species are found in the limnetic zone. Juveniles of this species are found in the nearshore, shallow-water habitat, hiding in the vegetation.

*Species Presence within the Project Site:*

No suitable habitat is present within the project site; however, the nearest CNDDDB occurrence is approximately 0.02 mile from project site within Clear Lake, which is intermittently hydrologically connected with the Molesworth Channel.

Silver-Haired Bat

This species is most closely associated with coniferous or mixed coniferous and deciduous forest types, especially in areas of Old Growth. They form maternity colonies almost exclusively in tree cavities or small hollows. Like many forest-roosting bats, silver-haired bats will switch roosts throughout the maternity season. Typical hibernation roosts for this species include small tree hollows, beneath exfoliating bark, in wood piles, and in cliff faces. Occasionally silver-haired bats will hibernate in cave entrances, especially in northern regions of their range.

*Species Presence within the Project Vicinity:*

Potential maternity roost habitat is present for this species adjacent to the project site. The nearest CNDDDB occurrence is approximately 15.6 miles away from the project site.

Western Red Bat

Roosting habitat for this species includes trees and sometimes shrubs in forests and woodlands from sea level up through mixed conifer forests. Roost sites are often in edge habitats adjacent to streams, fields, or urban areas. This species typically feeds over a wide variety of habitats, including grasslands, shrub lands, open woodlands and forests, and croplands.

*Species Presence within the Project Vicinity:*

Potential roosting and foraging habitat is present for this species adjacent to the project site. The nearest CNDDDB occurrence is approximately 8.2 miles away from the project site

Long-eared Myotis Bat

This species is found in brush, woodland, and forest habitats. Nursery colonies can be found in buildings, crevices, spaces under bark, and snags; caves are used primarily as night roosts.

### *Species Presence within the Project Vicinity:*

Suitable maternity roosting habitat exists adjacent to the project site. The nearest CNDDDB occurrence is approximately 8.2 miles away from the project site.

#### Fringed Myotis Bat

This species is most often associated with redwood forests in coastal areas and utilizes redwood hollows. This species can roost in caves, mines, and buildings. Potential maternity roost habitat occurs in oak tree cavities (both mature and medium-aged coast live oak).

### *Species Presence within the Project Vicinity:*

Potential maternity roost habitat is present adjacent to the project site. The nearest CNDDDB occurrence is approximately 8.2 miles away from the project site.

#### Raptors and Other Protected Migratory Bird Species

While the life histories of these species vary, overlapping nesting (approximately February through August) and foraging similarities allow for their concurrent discussion. Most species are breeding residents throughout most of the wooded portions of the state. Stands of live oak, riparian deciduous, or other forest habitats are used most frequently for nesting. Breeding occurs February through August, with peak activity May through July.

### *Species Presence within the Project Vicinity:*

Various raptor and migratory bird species may forage over the project site. Additionally, trees within and adjacent to the project site may provide appropriate nesting habitat.

### **Sensitive Habitats**

#### Wetlands and Waters of the U.S.

The U.S. Army Corps of Engineers (USACE) is the primary federal agency responsible for regulating Waters of the U.S. Waters of the U.S. are regulated under Sections 404 of the Clean Water Act and Sections 9 and 10 of the Rivers and Harbors Act. A Wetland and Waters of the U.S. Delineation Report was prepared for the project (DD&A, 2014) (**Attachment 5 of Appendix B**). No wetlands are present within or directly adjacent to the project. Approximately 0.25 acre of potential Waters of the U.S., consisting of the Molesworth Channel bed, was documented within the project site.

#### Riparian

The California Department of Fish and Wildlife (CDFW) and the Regional Water Quality Control Board (RWQCB) are the primary state agencies responsible for regulating riparian habitat. Riparian habitat is regulated under Sections 1600 of the Fish and Game Code. Riparian habitat consists of the vegetation associated with a hydrogeomorphic feature which is distinct from the adjacent upland vegetation. There is a significant amount of riparian habitat found within the mosaic of habitat types along the lake fringe and associated marshes. The Molesworth Channel was excavated in upland and for the purpose of conveying water to the lake. As such, a portion of the channel near the lake

contains riparian habitat. Approximately 0.12 acre of riparian habitat was documented within the project boundary.

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modification, or any species identified as sensitive, candidate, or special status species in local or regional plans, policies, or regulations, or by the Calif. Dept. of Fish and Game, the U.S. Fish and Wildlife Service, or NOAA Fisheries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the Calif. Dept. of Fish and Game or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands, as defined by §404 of the Clean Water Act (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## DISCUSSION

- a) While the project will have temporary impacts to biological resources as described below, the long-term impacts from the project will be positive. The project will improve habitat as the result of replanting disturbed areas with native vegetation

and trees, replacing the non-native, invasive vegetation that currently occupies the site. In addition, the project will enhance water quality by reducing on-site erosion and off-site sedimentation to the adjacent Clear Lake.

### **Plants**

No impacts to special-status plant species would occur as a result of the proposed project.

### **Wildlife**

Construction of the project has the potential to result in temporary impacts to several wildlife species as a result of vegetation removal, noise, vibration, and dust associated with construction actions. Construction activities are proposed during the dry season; however, if unseasonable storms occur during this period, temporary water quality impacts to Clear Lake could result from an increase in erosion and sedimentation or materials spill. Overall, the project objectives include reducing erosion and, thereby, improving water quality.

The short-term impacts identified above are considered less than significant; however, DPR Standard Project Requirements (Bio 1, Bio 3-6, Hazards 1, and Hydrology 1) and DPR Specific Project Requirement Bio 2 will be implemented to further reduce potential impacts to: the western yellow-billed cuckoo, raptors, and other protected migratory bird species, special-status fish, and special-status bats.

#### **b-c) Sensitive Habitats**

A small section of non-native Himalayan blackberry brambles will be permanently removed from the riparian habitat and 50 linear feet of rock protection will be placed in that location. In addition, 80 linear feet of rock protection will be placed in Waters of the U.S. Temporary construction-related impacts to Waters of the U.S. and riparian habitats could include soil disturbance from channel layback and the removal of non-native vegetation. These impacts are considered less-than-significant. To prevent unintentional impacts, the following DPR Standard Project and Specific Project Requirements will be implemented: Bio 1-6, Hazards 1, and Hydrology 1.

- d) The proposed erosion stabilization treatments would be installed during the dry season and would not divert or otherwise impede stream flow during construction or during the life of the project. Therefore, no impacts to native fish or wildlife movement or migration corridors would occur.
- e) An analysis of the proposed project's consistency with the policies of the AMSHP General Plan is described in **Section X, Land Use and Planning**. This project does not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. The DPR provides policy for the management of natural resources in Section 300 of its Department Operations Manual (DOM). The DOM provides policy for the protection,

restoration, and maintenance of natural resources within the State Park system. The proposed action is in conformance with DPR policy.

- f) The AMSHP is not part of any Habitat Conservation Plan or Natural Communities Conservation Plan.

## **V. CULTURAL RESOURCES**

### **ENVIRONMENTAL SETTING**

#### **Historic Background**

The Southeastern Pomo Indians called the lands now contained in the AMSHP their home for thousands of years. The AMSHP protects rich wildlife habitats that supported the Pomo people. They are known as some of the best basket makers in North America, and found ample supplies of raw materials available in the marshlands at the park. First published contact between Europeans and the Pomo people occurred in the 1820s, and by the 1830s and 1840s, accelerated settlement and a series of raids, deprivations, and military actions drove most Pomo off their traditional lands. By 1852, the area now contained in the AMSHP was extensively settled by ranchers and farmers and the Pomo were confined to specific Rancherias.

#### Paleontological Resources

Paleontological resources are the remains of prehistoric plant and animal life and do not include human remains or artifacts. Fossil remains such as bones, teeth, shells, and wood are found in geologic formations. These resources are limited, non-renewable, sensitive scientific and educational resources. No paleontological resources have been identified in the immediate vicinity of the project area, which is contained in relatively recent, Holocene-aged sediments. While local City and County agencies do not acknowledge the presence of paleontological resources in the project area, the United States Geological Survey researchers have mapped, classified, dated, and studied the fossil content of Pleistocene lakebed sediments in Clear Lake basin, which they divide into three units—Cache Formation, Lower Lake Formation, and Kelseyville Formation. Lower Lake Formation deposits containing fish and mollusk fossils dating 0.40–0.92 million years old occur immediately east of the project area.

#### Archaeological Resources

Anderson Marsh is one of the most densely populated areas of prehistoric California. There are 27 recorded Native American archaeological sites within the AMSHP. This array of sites is part of the Anderson Marsh Archaeological District listed on the National Register of Historic Places. These sites are divided into three categories based on site types listed in the National Register nomination for the Anderson Marsh Archaeological District. The entire 10,000 plus-year history of Anderson Marsh may be reflected in each category: special use sites, habitation sites, and village sites.

### *Special Use Sites*

These sites have small amounts of cultural debris, often obsidian and basalt chipping residue and tools or bedrock outcrops containing mortars and/or cupule petroglyphs. The sites are interpreted as chipping or tool renewal stations, temporary occupation zones, hunting stations, collection stations, or milling stations. Special use sites in the AMSHP includes CA-Lak-526, 527, 528, 529, 533, 537, 539, 540, 541, 587, 590, 633, 634, and 636.

### *Habitation Sites*

These are characterized by a midden deposit exhibiting tools, broken tools, and organic debris. Tools and broken tools represented include most of the locally manufactured chipped and ground stone tools. Organic debris can include shell, bone, and charcoal. These sites are interpreted as areas that were either occupied year round by a small group, possible a family, or seasonally occupied over a number of years. Habitation sites in the AMSHP include CA-Lak-69, 72, 509, 525, 625, and 635.

### *Village sites*

These are characterized by midden deposits covering an acre or more and exhibiting a broad range of artifacts of chipped and /or ground stone, mortars, petroglyphs, structure depressions, and human burials. Villages were usually ceremonial centers and were quite complex. The complex nature of village sites is exhibited by house depressions, ceremonial house or brush enclosure depression, and midden deposits up to 10 feet deep. Although southeastern Pomo villages were generally located on islands, at least four mainland sites in the AMSHP area exhibit village qualities. CA-Lak-30, 530, 589, and 656 are extensive and deep enough to warrant the classification of "village."

### Data Recovery Plan

A Data Recovery Plan has been developed in coordination with the local Native American Tribes. The principal tribes laying claim to the AMSHP area are the Koi group of the Southeastern Pomo and the Tuleyomi group of the Lake Miwok. In compliance with Section 106 of the National Historic Preservation Act, the DPR and Far Western Anthropological Research Group, Inc. (Far Western) consulted with the Koi Nation of California, Big Valley Rancheria of Pomo Indians, Elem Indian Colony of Pomo, and Middletown Rancheria of Pomo Indians.

The Data Recovery Plan includes a work plan for archaeological data recovered during construction to avoid and reduce impacts to sensitive resources. The work plan consists of measures that include Native American contact and coordination, surveys and mapping, protective fencing, installation of a temporary lab station, security and monitoring, manual excavation, and processing and cataloging recovered resources. Due to the sensitivity of the site's resources, the Data Recovery Plan will not be available for public distribution.

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## DISCUSSION

a,b,d) The Data Recovery Plan provides for long-term preservation of sensitive resources that are actively impacted due to on-going erosion. Stabilization of the channel banks would involve ground disturbing activities; however, all ground disturbing activities within the NRHP eligible portions of the site will be conducted using excavation techniques to preserve and protect sensitive resources as planned in the Data Recovery Plan (FWARG 2014), which states:

“All ground disturbance necessary to implement the project will be conducted in conformance with California Public Resources Code 5024 and 5024.5 and Executive Order W-26-92, which require State Parks to establish policies and directives for the effective stewardship of historical resources, and in keeping with the terms of a Memorandum of Understanding Between the California Department of Parks and Recreation and the California State Historic Preservation Officer Regarding Compliance with Public Resources Code 5024, 5024.5, and Executive Order W-26-92 (State of California 2004). Because the channel is classified as a water of the United States, the proposed project will require a permit from the U.S. Army Corps of Engineers (ACOE) under Section 404 of the Clean Water Act. The ACOE has agreed to serve as the Federal lead agency, and therefore this data recovery plan is also designed to comply with requirements of Section 106 of the National Historic Preservation Act (NHPA) [16 U.S.C. § 470f] and its implementing regulations ‘Protection of Historic Properties’ [36CFR800].

Project planning has commenced in compliance with State Parks Departmental Operations Memorandum (DOM) and Departmental Notice 2007-05, ‘Native American Consultation Policy and Implementation Procedures.’ The proposed data recovery will proceed in conformance with the National Historic Preservation Act, Section 101(d)(6)(B), which requires Federal agencies, in carrying out their Section 106 responsibilities, to consult with any Indian tribe that attaches religious

and cultural significance to historic properties that may be affected by an undertaking.”

Adherence to the above referenced procedures and measures provided in the 2014 Data Recovery Plan, as well as BMPs and Standard Project Requirements (Air Quality 1, Cultural 1 and 2, Hazards 1, and Hydrology 1), will reduce impacts to a less than significant level. No additional mitigation is required.

- c) There are no paleontological resources or unique geological resources known at within the City or AMSHP; however, resources have been mapped immediately to the east of the project area. Therefore, it is unlikely that any paleontological resources will be uncovered and this is considered a less than significant impact. The implementation of the procedures and measures provided in the 2014 Data Recovery Plan, as well as BMPs and Standard Project Requirements (Air Quality 1, Cultural 1 and 2, Hazards 1, and Hydrology 1), will further reduce impacts.

## **VI. GEOLOGY AND SOILS**

### **ENVIRONMENTAL SETTING**

The AMSHP is located in the northern Coast Ranges geomorphic province. Although the province is predominately comprised of Jurassic-Cretaceous metamorphosed rock of the Franciscan Complex, Anderson Marsh is set in an area of young volcanic rocks, lake deposits, and alluvium. Clear Lake’s waters cover a small percentage of the unit; however, some interesting outcrops do protrude from the lake and through the alluvium (e.g., Indian Island, Slater Island, and Lewis Ridge).

The hills, hot springs, and geothermal resources around the City are the products of past and present volcanism. The last volcanic event in the area was about 11,000 years ago. Future eruptions are expected to occur beneath the lake or to the east of Mt. Konocti. The major volcanic threats to the area are ash fall and waves in the lake generated by seismic events or explosively by an underwater eruption.

### **Seismicity and Related Seismic Hazards**

In comparison to many other regions of California, the area does not have many known seismic hazards. However, the area can be affected by earthquakes in three potential scenarios: 1) an earthquake caused locally by a small, nearby fault; 2) a quake caused by volcanic activity; and 3) an earthquake caused by a large fault, upwards of 100 miles away (e.g., originating from the San Andreas and Rogers Creek faults).

The nearest active fault is a branch of the Konocti Bay fault zone, about 2-1/2 miles west of the park. A strong earth quake could cause damage by ground rupture, shaking, or liquefaction of saturated sediments and subsequent loss of foundation support. Although there have been no strong earthquakes centered in Lake County since 1900, much of the park is underlain by Recent or Quaternary sediments which are susceptible to ground rupture, shaking, or where saturated liquefaction in the event of a strong earthquake. Anderson Marsh has felt the effects of both distant and local seismic activity.

Some soil types experience liquefaction during shaking. Soils that are unconsolidated, sandy, or water saturated are susceptible to liquefaction. As it shakes, the unconsolidated soil loses strength, and behaves like a liquid, amplifying building damage by causing foundations to sink and shift.

The threat of seismically induced landslides in and around the City is low due to the gentle topography. The proposed project site is classified by the California Geological Survey as being in landslide risk area 1, the least hazardous area and poses little or no threat.

**Soils**

The AMSHP is in a geologically complex region of hills and valleys of various ages and composition. The different parent materials in the area have created great differences in soil properties within short distances. The wide variability of soils at Anderson Marsh is best explained by dynamic geologic and geographic events. Local intrusion of volcanic rock into the sedimentary formations of the region, changes in the level of Clear Lake on a pedologic time scale, climatic changes, differences in relief, and differences in vegetative cover have resulted in localized differentiation of the soil-forming factors (parent material, relief, climate, biota, and time). The upland soils are derived from volcanic parent material under oak woodland, or alluvial material under oak-grassland.

The soils of the north section of AMSHP present severe constraints for buildings and moderate for roads. Problems include low strength and high shrink-swell potential, in addition to flooding. The National Resources Conservation Service (NRCS) Soil Survey identifies two soil mapping units within the project site; however, the majority of the project site is within the Still Loam mapping unit.

*Still loam (5-8 percent slopes)*

- Very deep, well-drained soil
- Found on alluvial plains
- Moderately slow permeability
- Very slow surface runoff
- Slight erosion hazard
- Uses: orchards, vineyards, hay and pasture, and home sites.

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42)				
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic related ground failure including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in on or off-site landslide, lateral spreading subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil as defined in Table 18-1-B of the Uniform Building Code (1997) creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## DISCUSSION

- a) The proposed project is not located in an Alquist-Priolo Earthquake Fault Zone as mapped by the State Geologist. The proposed project would not increase the exposure of people and structures to seismic hazards including seismic ground shaking and seismic-related ground failure. Also, all proposed channel improvements and bank stabilization work would be subject to all applicable laws, codes, and regulations, including, but not limited to, the 2013 California Building Code and California Labor Code, which have incorporated the most recent seismic design parameters and excavation safety for worker protection and that mitigate the potential for damage or loss of life due to seismic accelerations. Therefore, the potential impacts associated with the exposure of people or structures to substantial adverse effects of seismic activity are considered less than significant.
- b) The intent of the proposed project is to stabilize the channel banks and prevent further erosion resulting in benefits to the site. The site is not subject to landslides. BMPs, erosion control, revegetation, and Standard and Specific Project Requirements (Air Quality 1, Bio-2, and Hydrology 1) would be implemented

thereby reducing the potential for any erosion to occur during and post construction. The proposed project would not result in substantial soil erosion or loss of topsoil. This is considered a less than significant impact.

- c-d) The proposed project is on land that has been historically unstable. The proposed project would provide additional support and stabilization to the channel banks and streambed resulting in benefits to the site. This is considered a less than significant impact.
- e) The proposed project does not include septic tanks or alternative wastewater disposal systems and, therefore, there would be no impact.

## **VII. Greenhouse Gas Emissions**

### **ENVIRONMENTAL SETTING**

#### **Greenhouse Gases**

Greenhouse gases (GHGs) are emitted by both natural processes and human activities. Of these gases, carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>) are emitted in the greatest quantities from human activities. Emissions of CO<sub>2</sub> are largely by-products of fossil fuel combustion, whereas CH<sub>4</sub> results from off-gassing associated with agricultural practices and landfills. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21<sup>st</sup> century than were observed during the 20<sup>th</sup> century. Different types of GHGs have varying global warming potentials. The global warming potential of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere. Because GHGs absorb different amounts of heat, a common reference gas (CO<sub>2</sub>) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as “carbon dioxide equivalent” (CDE), and is the amount of a GHG emitted multiplied by its global warming potential.

According to the ARB, some of the potential impacts in California of global warming may include loss of snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. While these potential impacts identify the possible effects of climate change at a global and potentially statewide level, in general, scientific modeling tools are currently unable to precisely predict what impacts would occur locally.

#### Greenhouse Gas Emissions and Links to Global Climate Change

With regard to climate change impacts, no air district in California, including the LCAQMD, has identified a significance threshold for greenhouse gas (GHG) emissions or a methodology for analyzing air quality impacts related to greenhouse gas emissions. The State has identified 1990 emission levels as a goal through adoption of AB 32. To meet this goal, California would need to generate lower levels of GHG emissions than current levels. However, no standards have yet been adopted quantifying 1990 emission targets. For this analysis, the proposed project and the associated potential development’s contribution to global climate change would be considered significant if it would be inconsistent with AB 32’s goal of reducing 2020 greenhouse gas emissions to

1990 levels from sources associated with projected growth (i.e., motor vehicles, direct energy use, waste-related activities) or expose persons to significant risks associated with the effects of global climate change.

The greenhouse effect is a natural process by which some of the radiant heat from the sun is captured in the lower atmosphere of the earth, thus maintaining the temperature and making the earth habitable. The gases that help capture the heat are called greenhouse gases. Some GHGs occur naturally in the atmosphere, while others result from human activities. Naturally occurring GHGs include water vapor, carbon dioxide, methane, nitrous oxide, and ozone. Certain human activities, however, add to the levels of most of these naturally occurring gases as describe below:

- Carbon dioxide (CO<sub>2</sub>) is released to the atmosphere when solid waste, fossil fuels (oil, natural gas, and coal), and wood and wood products are burned.
- Methane (CH<sub>4</sub>) is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from the decomposition of organic waste in solid waste landfills and from the raising of livestock.
- Nitrous oxide (N<sub>2</sub>O) is emitted during agricultural and industrial activities, as well as during combustion of solid waste and fossil fuels.
- High global warning potential (GWP) gases that are not naturally occurring, including hydro fluorocarbons (HFCs), per fluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>), are generated in a variety of industrial processes.

Each GHG differs in its ability to absorb heat in the atmosphere. High GWP gases such as HFCs, PFCs, and SF<sub>6</sub> are the most heat-absorbent. Methane traps over 21 times more heat per molecule than CO<sub>2</sub>, and N<sub>2</sub>O absorbs 310 times more heat per molecule than CO<sub>2</sub>. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO<sub>2</sub>e), which weight each gas by its GWP. **Table 4** shows the GWP for different GHGs for a 100-year time horizon.

**Table 4. Global Warming Potential for Greenhouse Gases**

Greenhouse Gas	Global Warming Potential
Carbon Dioxide (CO <sub>2</sub> )	1
Methane (CH <sub>4</sub> )	21
Nitrous Dioxide (N <sub>2</sub> O)	310
Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs)	6,500
Sulfur Hexafluoride (SF <sub>6</sub> )	23,900

Since global climate change is certainly a cumulative impact, this analysis considers that the proposed project would have a significant impact if it would:

- Result in substantial net increases in greenhouse gases and CO<sub>2</sub>e emissions. In the absence of generally accepted thresholds of significance for projects, a substantial increase, for purposes of this analysis, occurs when a project exceeds thresholds of significance for criteria pollutants. This approach is consistent with

guidance from the California Air Pollution Control Officers' Association (CAPCOA), which notes that implementing CEQA without an explicit threshold prior to formal guidance from the State of California's Office of Planning and Research is appropriate. In fact, this approach is consistent with CAPCOA's belief that by defining substantial emissions of GHGs to performance standards (e.g., criteria pollutant emission thresholds), lead agencies would amass information and experience with specific project categories that would support establishing explicit thresholds in the future.

- Expose persons to significant risk associated with the effects of global climate change.
- Conflict with or obstruct implementation of the goals or strategies of Executive Order S-3-05.
- Be inconsistent with the Air Resources Board's 44 Early Action Measures for AB 32 compliance.
- Be subject to the California Air Resources Board's (CARB) mandatory reporting requirements (generally required for projects producing more than 25,000 annual metric tons of CO<sub>2</sub>e).
- Be inconsistent with the recommended global warming mitigation measures from the Attorney General, CAPCOA, Office of Planning and Research, or other appropriate sources.

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## DISCUSSION

- a) The proposed project would involve the stabilization of the Molesworth Channel banks. Therefore, the proposed project would not generate new vehicle trips or otherwise generate a new permanent stationary or mobile source of greenhouse gas emissions from operations. A small amount of emissions would result from construction activities, but, as described in **Section III, Air Quality**, the levels would be well below the thresholds of significance and potential impacts are considered less than significant.
- b) Assembly Bill (AB) 32, signed in September 2006, requires the State's global warming emissions to be reduced to 1990 levels by 2020. After completing a

comprehensive review and update process, the ARB approved a 1990 statewide GHG level and 202 limit of 427 MMT CO<sub>2</sub>e.

Senate Bill (SB) 97, signed in August 2007, acknowledges that global climate change (GCC) requires analysis under CEQA. In March 2010, the California Resources Agency (Resources Agency) adopted amendment to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted amendments give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and GCC impacts.

SB 375, signed in August 2008, requires the inclusion of sustainable communities' strategies (SCS) in regional transportation plans (RTPs) for the purpose of reducing GHG emissions. The bill requires the ARB to set regional targets for the purpose of reducing GHG from passenger vehicles for 202 and 2035.

No local or regional plans to reduce GHG emission are currently in place. Therefore, the project does not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG, and no mitigation measures are required.

## **VIII. HAZARDS AND HAZARDOUS MATERIALS**

### **ENVIRONMENTAL SETTING**

#### **Hazardous Sites and Materials**

The Department of Toxic Substances Control (DTSC) manages a Hazardous Waste and Substance Sites List. There are 23 sites on that list within Clearlake city limits, but only four are currently being remediated or monitored. The other 19 sites have been mitigated and/or had new uses permitted. The DTSC envirostor website shows that the closest remediation site is more than a half of a mile away from the proposed project site.

#### **Airport Safety**

The City plans to redevelop the decommissioned regional airport, Pearce Airport, into a business park. There are no other airports or local air strips in the proposed project vicinity.

#### **Fire**

Dry weather conditions, heat, wind, and abundant dead vegetation make fire one of the highest priority natural hazards for the area. Climate change will exacerbate these conditions, and climate models have predicted a significant increase in risk through 2085. A large portion of land east of State Route 53 is designated as a "very high" fire hazard zone and area surrounding Clearlake is designated a "wild land urban interface," where structures are considered vulnerable to fire damage. Poor quality roads and insufficient water suppression facilities can make firefighting difficult in these areas. The project site is not located in fire hazard zone.

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials, substances, or waste into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous material sites compiled pursuant to Government Code §65962.5 and as a result create a significant hazard to the public or environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury, or death from wildland fires, including areas where wildlands are adjacent to urbanized areas of where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## DISCUSSION

- a) The proposed project does not involve the routine transport, use, or disposal of hazardous materials. Additionally, the proposed project would comply with all pollution and environmental control rules, regulations, ordinances, and statutes that apply to the project. As such, there would be no impact.
- b) As with most construction activities, short-term impacts may occur during construction activities from the removal of existing materials and the storage and use of hazardous materials. Construction activities have the potential to release petroleum products and other substances into waterways. Hazardous materials may be temporarily stored and used on site during construction, including petroleum products, solvents, and cleaners, primarily used for operation and maintenance of construction equipment. These materials would be stored properly within the staging area, in accordance with BMPs, Standard Project Requirements (Hazards 1 and Hydrology 1), and applicable regulations, and the staging area would be secured from public access. Erosion controls would be implemented to prevent water quality impacts, and a spill plan would be developed to address any accidental spills. Any waste products resulting from construction operations would be stored, handled, and recycled or disposed of in accordance with federal, state, and local laws. Therefore, this is considered a less than significant impact and no mitigation is required.
- c-f) The project site is not located within one quarter mile of a school or on a site listed as a hazardous materials site, within an airport land use plan, or within the vicinity of a private air strip. Therefore, no impacts related to these topics would occur.
- g-h) The project does not have the potential to interfere with an emergency response plan or to expose people or structures to wildland fires. Therefore, no impacts related to these topics would occur.

## IX. HYDROLOGY AND WATER QUALITY

### ENVIRONMENTAL SETTING

#### Regional Hydrologic Setting

The AMSHP lies entirely within the Upper Cache Creek Hydrologic Area. This watershed, with a total drainage area of 528 square miles, encompasses Clear Lake and its tributaries and Cache Creek upstream from Clear Lake Dam. The AMSHP is located at the lower end of Clear Lake and makes up less than 3 percent of the Upper Cache Creek Hydrologic Area. Cache Creek drains the watershed and flows east-southeast to the Capay Valley and the Sacramento Valley; it, eventually empties into the Yolo Bypass.

A portion of Clear Lake is within the AMSHP boundary, including approximately 3,000 feet of shoreline. Cache Creek, the Clear Lake outlet channel, flows through the park, accounting for an additional 10,000 feet of shoreline. Several islands are created by the meandering flow of Cache Creek, including Slater Island. The marshlands that comprise about one-third of the unit are also formed by lake and stream waters.

Anderson Marsh, located at the lower end of Clear Lake at the lake's outlet into Cache Creek, makes up only a small portion less than 3 percent of the Upper Cache Creek watershed area. Surface hydrologic features within the unit's boundaries include a small stretch of Clear Lake and its shoreline, most of Anderson Marsh, and portions of Cache Creek and Seigler Creek, a minor tributary to Cache Creek.

Molesworth Creek has been channelized so that it now empties into Clear Lake along the unit's northern boundary. At least as recently as 1958, the flow of this creek was southwesterly and then southerly across the flat. Molesworth Creek previously drained into the Cache Creek channel at a point opposite Slater Island. This previous alignment carried water through wetland and riparian features. The natural vegetation and wildlife has likely changed due to the channelization of Molesworth Creek and its new alignment.

### **Flooding**

Approximately 6 percent of the Anderson Marsh area is inundated when the lake level is 1.35 feet on the Rumsey Gage; approximately 68 percent is inundated when the lake is near full at 7.35 feet. Extensive flood problems exist in this region.

Historically, all major floods have resulted from general rainstorms that characteristically have peaks producing large quantities of water within short periods of time. The flood season extends from November until March. Flooding around the rim of Clear Lake occurs when inflow to the lake greatly exceeds the discharge capability of the Clear Lake Outlet Channel for long periods of time. Approximately 82 percent of the Anderson Marsh area, including the project site, is within the 100-year floodplain.

### **Water Quality**

Significant water quality problems in the watershed include nuisance algae growth in Clear Lake, sediment loading, and high boron content. Dense algae growth occurs throughout the lake in the spring and fall and has been most prominent in the lake's lower arm, in which the AMSHP is located. The blue-green algae, or cyanobacteria, create cyanotoxins, which are chemicals that can cause harmful effects. These algal blooms in the lake cause an undesirable appearance in the color of the water, unsightly scums on the water, odor problems, and can cause injury to the liver, nervous system, and kidneys or skin irritation. Decomposition of large algae masses also depletes the water's oxygen supply.

Sediments flowing into the lake have increased with an increase in agricultural and urban development. Clear Lake is listed as an impaired water body on the State Water Resources Control Board's 303(d) list due to high nutrient levels; therefore, the State developed a nutrient total maximum daily load (TMDL) for Clear Lake. The TMDL, adopted by the Central Valley Regional Water Quality Control Board (Regional Water Board) in 2006, recommends a 40% reduction in phosphorous levels of the Lake to reduce algae and increase water clarity. As required by the TMDL, Lake County and Clear Lake TMDL stakeholders developed a monitoring program in 2008 to measure the source and quantity of nutrients entering the lake and a subsequent Monitoring and Implementation Plan (2009) which identifies past, present, and proposed actions to

reduce the nutrient loading of Clear Lake, including mercury levels from the Sulphur Bank Mercury Mine and other mercury hotspots within the watershed.

**Groundwater**

Groundwater resources in the unit are present in the Lower Lake Valley Groundwater Basin, with a storage capacity of 4,000 acre-feet. The Lake County Watershed District has developed a Groundwater Management Plan (GMP) to provide guidance in managing the groundwater resources of the County. The Watershed District has initiated a number of efforts to proactively address water resource issues.

**Seiche**

A seiche is the equivalent of a tsunami on a lake, which could occur following an earthquake. No agency has produced simulations of the level of inundation from a potential Clear Lake seiche. Low-lying developed areas are therefore at risk when an earthquake occurs. Areas with steeper slopes are also susceptible to mudflows during periods of intense rainfall.

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area including through alteration of the course of a stream or river in a manner, which would result in substantial on or off-site erosion or siltation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Substantially alter the existing drainage pattern of the site or area including through alteration of the course of a stream or river in a manner, which would result in substantial on or off-site flooding?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place structures that would impede or redirect flood flows within a 100-year flood hazard area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury, or death from flooding, including flooding resulting from the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Result in inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## DISCUSSION

- a, f) The proposed project consists of erosion stabilization efforts that would benefit water quality in the channel and Clear Lake. The construction activities would be constructed outside of the rainy season and an erosion control plan would be implemented to minimize the potential for any water quality impacts. In addition, BMPs and Standard Project Requirements (Hazards 1, and Hydrology 1) would be implemented during and post construction. Therefore, impacts to water quality are considered less than significant and no mitigation is required.
- c-d) The proposed project consists of installing turf reinforced mat and rock protection in four locations along the channel. In addition, vegetation removal and bank excavation are proposed. Although the activities would slightly alter the channel

drainage, these activities have been engineered and designed to reduce erosion and stabilize the banks and would not result in an increase in erosion or flooding. This is considered a less than significant impact and no mitigation is required.

- b, e, g-i) The proposed project involves erosion stabilization measures in the Molesworth Channel. The project would not result in a substantial depletion of groundwater, create or contribute to runoff that would exceed capacity of the existing storm drainage system, place housing or structures within a 100-year flood hazard area, or expose people or structures to a significant risk of flooding. No impacts would result.
- j) The proposed project is located in an area where a lake seiche could occur if there were an earthquake. No agency has produced simulations of the level of inundation from a potential Clear Lake seiche. Given the location of the proposed project, it is plausible that a large wave event could inundate the Molesworth Channel. However, the proposed project does not involve placing people or structures in the area and no risk to people or structures would occur. Therefore, this is considered a less than significant impact and no mitigation is required.

## **X. LAND USE AND PLANNING**

### **ENVIRONMENTAL SETTING**

The City of Clearlake consists of approximately 14,518 parcels that comprise an area of 6952.6 acres or 10.9 square miles. Approximately 57 percent of the land within Clearlake is considered vacant land. Residential use in Clearlake comprises approximately 28 percent of the total area. Open space, which includes agriculture, makes up close to 10 percent of the city's land while commercial users occupy about 1.7 percent, public facilities take up nearly 2 percent, and land that is under industrial and mixed use is 1.25 percent.

During the course of its development, the AMSHP General Plan Land Use Plan takes into consideration the activities and facility needs identified by the various General Plan elements. There are a number of agencies that create plans for the county, city, and State Historic Park. The DPR carries the dual mission of protecting and preserving the resources of the State Park System and of providing recreation opportunities and facilities for the public through the use of the State Park System. The establishment and classification of Anderson Marsh as a state historic park recognizes the significant cultural resources of the site. The Land Use Element of the Anderson Marsh General Plan determines the "best use" of the land at Anderson Marsh State Historic Park for providing these opportunities consistent with the programs and policies identified in the Resource Element for resource protection and perpetuation.

The AMSHP General Plan policies applicable to the proposed project include the following:

- The department shall assess the benefit and feasibility of implementing a plan to redirect and restore Molesworth Creek to a natural path and flow regimen. To

accomplish this objective, the department shall cooperate with the City of Clearlake to prevent any negative impact on the community.

- Soil information shall be considered in the design and location of facilities. Soil loss due to unnatural erosion shall be monitored and project implemented when necessary to prevent and reduce soil losses and restore soil integrity where possible.
- The primary objective of vegetation management shall be to manage toward a natural condition with a minimum of disruption to natural processes. The secondary objective shall be to restore and perpetuate the native plant communities that prevailed in the area prior to Euroamerican influences.
- To ensure the protection and perpetuation of the native oaks of Anderson Marsh State Historic Park, the foothill woodland community shall be managed to promote an increased representation of the younger age classes of the oaks. A general oak monitoring program shall be established to determine annual recruitment and mortality of oaks, and present age class representation.
- Riparian areas shall be protected from activities that result in the loss of riparian vegetation or restrict development and perpetuation of a multi-layered plant community structure. Trail access in riparian areas shall be developed and maintained where it is found to be compatible with resource values and least disruptive to riparian ecosystems.
- Altered natural habitats shall be restored as nearly as possible to conditions that would exist had natural ecological processes not been disrupted. Whether or not restoration of natural conditions is possible, it shall be the policy of the department to avoid significant imbalances caused by human influences on the natural wildlife populations.
- Specific management programs shall be developed when appropriate for animal species that are threatened, endangered, or of special concern. Necessary and suitable habitat, where it exists, shall be perpetuated. Programs or projects undertaken at Anderson Marsh State Historic Park shall be planned and designed so that animal life requiring special management consideration would not be adversely affected. Resource management actions would focus on natural processes, in recognition of the fact that natural processes are mutually beneficial to all important resources. The department shall conduct a thorough survey for the threatened California yellow-billed cuckoo at Anderson Marsh and prepare a management plan to enhance the survival potential of this species.
- Riparian ecosystems at Anderson Marsh State Historic Park shall be managed for their long-term preservation and enhancement, restoring them to their former stature where possible.
- The department shall protect and preserve all of the Native American resources at Anderson Marsh State Historic Park. The department shall prepare and implement a plan of the long-range management of Native American and archaeological resources within the unit. This plan shall include programs for future research,

curation, interpretation, and excavation of archaeological resources. Such plan shall reflect the department policies regarding Native American concerns and involvement. Archaeological and historical societies, universities, and interested groups or individuals shall be encouraged to participate in this program under the guidelines established by the management plans and in accordance with resource management directives.

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with the applicable land use plan, policy, or regulation of any agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## DISCUSSION

- a-c) The proposed project would provide bank stabilization along the banks of the Molesworth Channel to reduce erosion and protect sensitive resources. The proposed project would not physically divide a community or conflict with a habitat conservation plan. Additionally, the proposed project was reviewed for consistency with the applicable policies from the AMSHP General Plan identified above. The proposed project is consistent with these policies. Therefore, there would be no impact.

## XI. MINERAL RESOURCES

### ENVIRONMENTAL SETTING

Currently the only active mining taking place within city limits is aggregate mining. However, no aggregate mineral resources or other mineral resources of state or local significance are mapped within the City of Clearlake. No significant mineral resources have been identified within the boundaries of the AMSHP. Mineral resource extraction is not permitted within State Park property.

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that is or would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**DISCUSSION**

- a) The project would not result in the loss of availability of a known mineral resource because no known mineral resources exist within the AMSHP and resource extraction is not allowed in State Park units. No impact would occur.
- b) The project would not result in the loss of availability of a locally important mineral resource recovery site because none exists within the AMSHP and resource extraction is not allowed in State Park units. No impact would occur.

**XII. NOISE**

**ENVIRONMENTAL SETTING**

AMSHP is not a quiet wilderness park. It is, instead, an open, undeveloped area in the midst of a developing urban/suburban area. Sources of noise in the park are vehicle traffic on Highway 53, motorboats on Cache Creek, and various urban noises from the adjacent residential uses. The areas of the park most impacted by noise include the ranch complex (Highway 53), Cache Creek, Slater Island, and the North Flat (motorboats and the City of Clearlake). Little noise is generated within the park. Normally, there are very few visitors in the park; most of the annual visits are associated with special events and activities.

Clear Lake is a stationary source of noise due mostly to noise associated with motorboat operation. Both recreational activity and the presence of large numbers of people visiting the lakefront area directly affect ambient noise levels of parcels adjacent to the lakefront. The City does not have railroads within city limits nor does the City operate an airport.

The location of a noise receptor relative to noise producers can result in the production of unwanted noise. While land use planning and zoning attempts to separate sensitive noise receptors from noise producers, noise conflicts may still arise.

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate or expose people to noise levels in excess of standards established in a local general plan or noise ordinance or in other applicable local, state, or federal standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generate or expose people to excessive groundbourne vibrations or groundbourne nose levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Create a substantial permanent increase in ambient noise levels in the vicinity of the project (above levels without the project)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a substantial temporary or periodic increase in ambient noise levels in the vicinity of the project, in excess of noise levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Be located within an airport land use plan or, where such a plan has not been adopted within two miles of a public airport or public use airport? If so, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be in the vicinity of a private airstrip? If so, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**DISCUSSION**

a,b,d) The proposed project site is located along Molesworth Channel within the AMSHP. Sensitive noise receptors in the project vicinity include residential housing. Sources of noise near the project area include recreational boat traffic, vehicular road traffic, recreational activities, and wildlife.

The construction of the proposed project would result in temporary, short-term noise levels that may be considered unpleasant to nearby residents. Noise impacts would be limited to the temporary increases in local noise levels resulting

from the proposed construction activities over a two to three-month period. Construction vehicles driving to and from the project site may also affect noise in the area. Minimal heavy equipment would be utilized at the site; excavation would be conducted manually. Temporary, minor groundborne vibration may be generated during construction. These impacts would be primarily experienced by recreational visitors to the AMSHP.

These noise and vibration sources would be temporary, as the equipment and construction vehicles would operate intermittently over the construction period. The implementation of BMPs and Standard Project Requirements (Noise 1) would reduce any potentially significant noise impacts to a less than significant level. No mitigation is required. The project would not have operational noise or vibration impacts because it would not add new permanent sources of noise or groundborne vibration.

- c) The proposed activities are temporary and short-term in nature and would not lead to a permanent increase in ambient noise levels. Therefore, no permanent noise impacts would result from the proposed project.
- e, f) The project site is not located within the vicinity of an airport or private airstrip. Therefore, no impact would result.

### XIII. POPULATION AND HOUSING

#### ENVIRONMENTAL SETTING

The *2010 Census* shows that the population of Clearlake was 15,250 in 2010. In comparison to the previous Census from 2000, the population of Clearlake increased by 1.6 percent, growing from 13,142 people in 2000 to 15,250 in 2010 (Clearlake 2040 General Plan Background Report, 2012). The *2013 Regional Housing Needs Plan* indicated that Clearlake had an estimated 2013 population of 15,192, a 0.38 percent decrease from the 2010 Census. The population of Clearlake is expected to increase by 22 percent by the year 2040.

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area either directly (for example by proposing new homes and businesses) or indirectly (for example through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing necessitating the construction of replacement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- housing elsewhere?
- c) Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?

**DISCUSSION**

- a-c) The project consists of bank stabilization along the Molesworth Channel and would not result in any new development or induce population growth. As such, there would be no impact.

**XIV. PUBLIC SERVICES**

**ENVIRONMENTAL SETTING**

The Lake County Fire Protection District and California Department of Forestry and Fire Protection provide fire protection services to the City. The Lake County Fire Protection District serves approximately 17,955 residents in their 165-square-mile district, which includes the communities of Clearlake and Lower Lake. The Clearlake Police Department provides police protection services to the City of Clearlake from its police headquarters. Clearlake has two elementary schools serving kindergarten through 8<sup>th</sup> (K-8) grade students, one alternative school serving 3<sup>rd</sup> through 8<sup>th</sup> (3-8), and one community college, Yuba Community College.

The City has three neighborhood parks, totaling 36 acres. Regional and State parks offer additional open space preserves and recreational opportunities to residents and tourists. Regional recreational resources in the vicinity of the City include AMSHP and McVicar Wildlife Sanctuary. The community also has access to nearby water-related recreational opportunities at Clear Lake and Borax Lake. In addition, open space with trails is situated within Lake County on federal and state-owned public land, easily accessible to the population of Clearlake. School facilities also contain playgrounds and sports field that have limited access during non-school hours. The City has one library, Redbud Library.

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in significant environmental impacts from construction associated with the provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities to maintain acceptable service ratios, response times, or other performance objectives for any of the public service:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**DISCUSSION**

- a) The proposed project involves bank stabilization along the Molesworth Channel and would not result in an increased demand on fire or police protection, schools, or other public facilities. As a result, there would be no impact.

Although the proposed construction activities could result in a partial closure of portions of the channel site in the AMSHP to pedestrian traffic, these activities would be temporary and would not result in significant increase in demand for new, additional park facilities elsewhere. As a result, this is considered a less than significant impact and no mitigation is required.

**XV. RECREATION**

**ENVIRONMENTAL SETTING**

Parks in the project vicinity and the potential for an increase in demand for park facilities are described in the previous section. This section addresses recreational facilities within AMSHP.

Several ad-hoc trails have been formed as a result of pedestrians crossing the site or utilizing the dry channel to access the Clear Lake shore. The resulting erosion from these trails is contributing to the sloughing of the banks and poses a potential risk to the proposed stabilized banks. As a result, the proposed project includes installing split-rail fencing to protect the banks and sensitive resources.

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## **DISCUSSION**

- a, b) The proposed project consists of bank stabilization efforts, partially in response to ad-hoc trails in and around the channel. The proposed project includes fencing to protect the erosion improvements from future degradation from visitors. The proposed project would not increase the use of the site or require the construction or expansion of recreational facilities. Therefore, no impact would occur.

## **XVI. TRANSPORTATION/TRAFFIC**

### **ENVIRONMENTAL SETTING**

#### **Clearlake Vicinity**

Regional access to the greater Clearlake area is provided by I-5, U.S. 101, and SR 53. Roadway facilities that provide external linkages include SR 53, SR 29, and SR 20. The City's road system consists primarily of a grid pattern with some limitations. State Route 53 traverses the City from north to south, with limited crossings that presents a challenge to east-west flow of traffic. Approximately 56 percent of roadways within the City limits are paved.

#### **Level of Service**

Traffic conditions are usually evaluated using Level of Service (LOS), a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or congested conditions with excessive delays. Such standards can also be used to measure the user experience of all travelers in the transportation system including pedestrians, bicyclists, and transit riders, using standards established in the Transportation Research Board's "Highway Capacity Manual" (HCM). Recent studies have determined that all regional study intersections operate at acceptable LOS C or better, except for the two-way stop controlled intersection of SR 53 and SR 20, which operates at LOS F during the p.m. peak hour, but is outside the City Limits.

#### **Transit, Bikeway, and Pedestrian Facilities**

The main transit system in Clearlake is the public bus system operated by Lake Transit Authority (LTA). The objective of LTA is to provide public transit services throughout Lake County. Formed in 1996, LTA has served the community for more than 18 years. A private contractor operates the bus service and is managed by the LTA transit manager. LTA's primary source of funding is the Lake County/City Area Planning Council (APC). Biking and pedestrian facilities are discussed in the Clearlake General Plan. The city has plans for redevelopment and infill that would designated more mixed-use with multi-modal circulation.

#### **Anderson Marsh**

There are two ways to enter the park by road: the Anderson Ranch complex is reached by a short driveway off Highway 53; the North Flat is reached by taking the Old State Highway from Highway 53 and entering on Lakeview Way. The Old State Highway is a city arterial or collector street while Lakeview Way is a residential street within the City of

Clearlake until it enters the park. Highway 53 is a two-lane highway and congested most of the time.

There are no lane provisions for entering or exiting the highway from the ranch area, which increases highway congestion and accidents. Northbound vehicles entering the park must slow down to about 5 to 10 mph or stop before exiting the highway, adding to traffic congestion. Those entering the highway from the ranch must wait for an opening in traffic large enough to allow entering the proper lane and accelerating to a safe speed. If they are headed north, they must wait for openings in both lanes. Often, vehicles entering the highway from the ranch complex cause oncoming vehicles to brake to avoid a collision.

The intersection of Highway 53 and Old State Highway, used by most visitors to the North Flat, has left turn, acceleration, and deceleration lanes. This intersection does not have a history of accidents and is considered safe by Caltrans.

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards and travel demand measures, or other standards established but the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## DISCUSSION

- a-b) The proposed project involves bank stabilization and erosion control measures and would not include any new development or associated vehicle trips. The proposed project would not construct new roadways or alter existing roadways, and therefore would have no permanent impacts to vehicular transportation. Further, construction vehicle traffic would be minimal, and limited to trucks used for loading and unloading of materials, as well as worker transportation to the site. These factors may result in a temporary and intermittent addition of a minor amount of additional vehicles to the project site, which would not substantially impact traffic flow on local or regional roadways. BMPs would reduce the potential impacts to the local road network during construction. Therefore, these impacts are less than significant and no mitigation is required.
- c-f) The project would not result in the construction of any new roadways and, therefore, would not increase hazards due to design features. Additionally, this project would not result in a change in air traffic patterns or interfere with emergency access/response routes. The proposed project would not conflict with any adopted policies, plans, or programs supporting alternative transportation. The project would not significantly restrict or impede access to any designated trails or bicycle tracks. As such, there would be no impact.

## XVII. UTILITIES AND SERVICE SYSTEMS

### ENVIRONMENTAL SETTING

#### Water and sewage/wastewater

Potable well water is available at the ranch house. Chemical toilets for park visitors are located at the North Flat parking area and at the ranch complex. The ranch house has a full bathroom connected to a regional sewer line.

#### Stormwater Drainage

Clearlake's drainage management zones were identified in a 1994 Storm Drainage Master Plan. Eight key drainage areas in the City were identified as the following: the northwest area of the City, Borax Lake, Highlands Park, Burns Valley, the downtown, Molesworth Creek drainage, an unnamed creek south of Molesworth Creek drainage, and areas which surround Cache Creek (Bashford, 1994). Storm water is managed through an incomplete system of drains and culverts that direct water from the City into Clear Lake. The construction, maintenance, and monitoring of storm water infrastructure is managed jointly by Lake County, the City of Lakeport, and the City of Clearlake under the Lake County Clean Water Program.

#### Solid Waste

The majority of solid waste in Clearlake is taken to Eastlake Landfill, located at 16015 Davis Street just east of the City. South Lake Refuse and Recycling Center is next to the landfill and shares the same address. Quackenbush Mountain Resource Recovery and Compost Facility is nearby at 16520 Davis Street and is used by South Lake Refuse to deliver green waste. Eastlake Landfill is a Class II facility and is the only disposal facility in the County.

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment restriction or standards of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No		
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No		
d) Would the construction of these facilities cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Have sufficient water supplies available to serve the project from existing entitlements and resources or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in a determination by the wastewater treatment provider that serves or may serve the project, that it has adequate capacity to service the project's anticipated demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Comply with federal, state, and local statutes and regulations as they relate to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## DISCUSSION

- a-b) No wastewater would be produced by this project. No impact would occur.
- c-d) The project would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities because no stormwater facilities are needed. No impact would occur.
- e) The project would require an outside source of water for dust control during construction; however, the proposed project would not require any new water supply. No impact would occur.
- f) No wastewater would be produced by this project. No impact would occur.
- g-h) No solid waste would be generated by this project. Waste from construction workers would be hauled off site and disposed of in a facility designed for waste. No impact would occur.

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## CHAPTER 4 – MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means the incremental effects of a project are considerable when viewed in connection with the effects of past projects, other current projects, and probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have environmental effects that would cause substantial adverse effects on humans, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### DISCUSSION

- a) The proposed project was evaluated for potential significant adverse impacts to the natural environment and cultural resources. It has been determined that, with full implementation and adherence to the Date Recovery Plan, BMPs, and Standard and Specific Project Requirements, the proposed project would result in less than significant impacts to biological and cultural resources.
- b) The proposed project would result in less than significant impacts to aesthetics, air quality, biological resources, cultural resources, geology/soils, greenhouse gas emissions, hazards and hazardous materials, hydrology/water quality, noise, public services, and transportation/traffic. When considered cumulatively along with past,

current, and probably future projects (as identified in **Section 2.11**), the proposed project's contribution is considered negligible and would not be cumulatively considerable.

- c) All of the environmental effects have been determined to pose a less than significant impact on humans. The project is designed to reduce adverse effects to humans to the greatest extent possible. Potential impacts would be reduced to a less than significant level if all project requirements are fully integrated into the project.

## CHAPTER 5 – REFERENCES

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2. Department of Toxic Substance Control. EnviroStor website. Available online at <https://www.envirostor.dtsc.ca.gov/public/>
3. California Stormwater Quality Association. 2003. Stormwater Best Management Practices Construction Handbook.
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5. Fall Creek Engineering. 2014. Basis of Design Channel Stabilization – Molesworth Creek, Anderson Marsh State Historic Park, Clearlake, Lake County, California. Prepared for DPR, March 2014.
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20. U.S. Department of Agriculture – Natural Resources Conservation Service. 1989. Soil survey of Lake County, California. Available online at [http://www.nrcs.usda.gov/Internet/FSE\\_MANUSCRIPTS/california/CA033/0/lake.pdf](http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/CA033/0/lake.pdf)
21. U.S. Department of Agriculture – Natural Resources Conservation Service. 2014a. Web soil survey. Available online at <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

## CHAPTER 6 – REPORT PREPARATION

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### **California Department of Parks and Recreation**

Srikanth Rao, Construction Supervisor II  
Patricia DuMont, Staff Park and Recreation Specialist  
Steve M. Hilton, Associate State Archaeologist  
Roy Martin, Environmental Scientist  
Trish Ladd, Environmental Scientist  
Leslie Steidl, Associate State Archeologist

### **Fall Creek Engineers**

Robyn Cooper, MS, PE, Senior Engineer  
Emily Corwin, MS, PE, Senior Associate Engineer

### **Far Western Anthropological Research Group, Inc.**

Patricia J. Mikkelsen, Principal  
Gregory G. White, Ph.D., Project Principal

### **Denise Duffy & Associates, Inc.**

Denise Duffy, Principal  
Erin Harwayne, AICP, Senior Project Manager  
Julia Simmons, Associate Environmental Planner  
Matthew Kawashima, Graphics  
Julianne Farrar, Word Processing  
Rayanne Bethke, Production

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## **APPENDIX A – PROJECT PLANS**

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ACQUISITION & DEVELOPMENT DIVISION  
One Capitol Mall  
Sacramento, CA  
95814-3229



CALIFORNIA STATE FIRE MARSHAL- APPROVED  
Approval of this plan does not authorize or approve any omission of deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on the project site at all times.  
Reviewed by \_\_\_\_\_ Date \_\_\_\_\_  
DPR ACCESS COMPLIANCE REVIEW ACCESSIBILITY SECTION  
CERTIFICATION # \_\_\_\_\_  
Reviewed by \_\_\_\_\_ Date \_\_\_\_\_  
ACCESSIBILITY COMPLIANCE AND STATE FIRE MARSHAL SIGNED ORIGINALS ARE ON FILE AT THE DEPARTMENT OF PARKS AND RECREATION, NORTHERN SERVICE CENTER

DESIGNED: RLC  
DRAWN: RLC, EMC, TBG  
CHECKED: PHH  
DATE: 03-14-2014

REVISIONS	
NO.	DATE

MOLESWORTH CHANNEL EROSION STABILIZATION  
**COVER SHEET**

DRAWING NO.  
30287.001

SHEET NO.  
**C0.0**

001 OF 014

# CALIFORNIA DEPARTMENT OF PARKS AND RECREATION ACQUISITION AND DEVELOPMENT DIVISION

# ANDERSON MARSH STATE HISTORIC PARK MOLESWORTH CHANNEL EROSION STABILIZATION

CSFM # 07-23-11-0017

1. THE PURPOSE OF THIS PROJECT IS TO PROTECT NATIONAL REGISTER OF HISTORIC PLACES SITE CA-LAK-656 WHICH IS BEING ADVERSELY AFFECTED BY EROSION WITHIN THE SEASONAL MOLESWORTH CREEK CHANNEL.
2. A TOTAL OF 57,120 SQUARE FEET OF THE CHANNEL WILL BE REPAIRED AT FOUR LOCATIONS WITHIN THE EXISTING CHANNEL ALIGNMENT WHERE CHANNEL BANKS ARE OVER STEEPENED OR ARCHEOLOGICAL RESOURCES ARE AT RISK, THE CHANNEL BANKS WILL BE STABILIZED THROUGH TREATMENT CONSISTING OF LAYING BACK CHANNEL BANK SLOPES, INSTALLATION OF TURF REINFORCED MAT WITH SOIL BACKFILL, NATIVE GRASS REVEGETATION AND TEMPORARY EROSION CONTROL BLANKET.
3. STABILIZATION AREAS 1 AND 4 WILL BE REGRADED ON 320 LINEAR FEET OF A LOW FLOW CHANNEL.
4. REVEGETATION OF THE CHANNEL BANKS AND ADJACENT AREAS WILL COVER 1.31 ACRES WITH NATIVE PLANTS AND SEEDS TO MITIGATE DAMAGES CAUSED BY CONSTRUCTION.
5. EROSION CONTROL MEASURES SHALL BE INSTALLED TO MITIGATE CONSTRUCTION ACTIVITIES, INCLUDING 16,400 SQ FT OF TEMPORARY EROSION CONTROL BLANKETS AND 30,400 SQ FT OF STRAW AND SEED MIX.

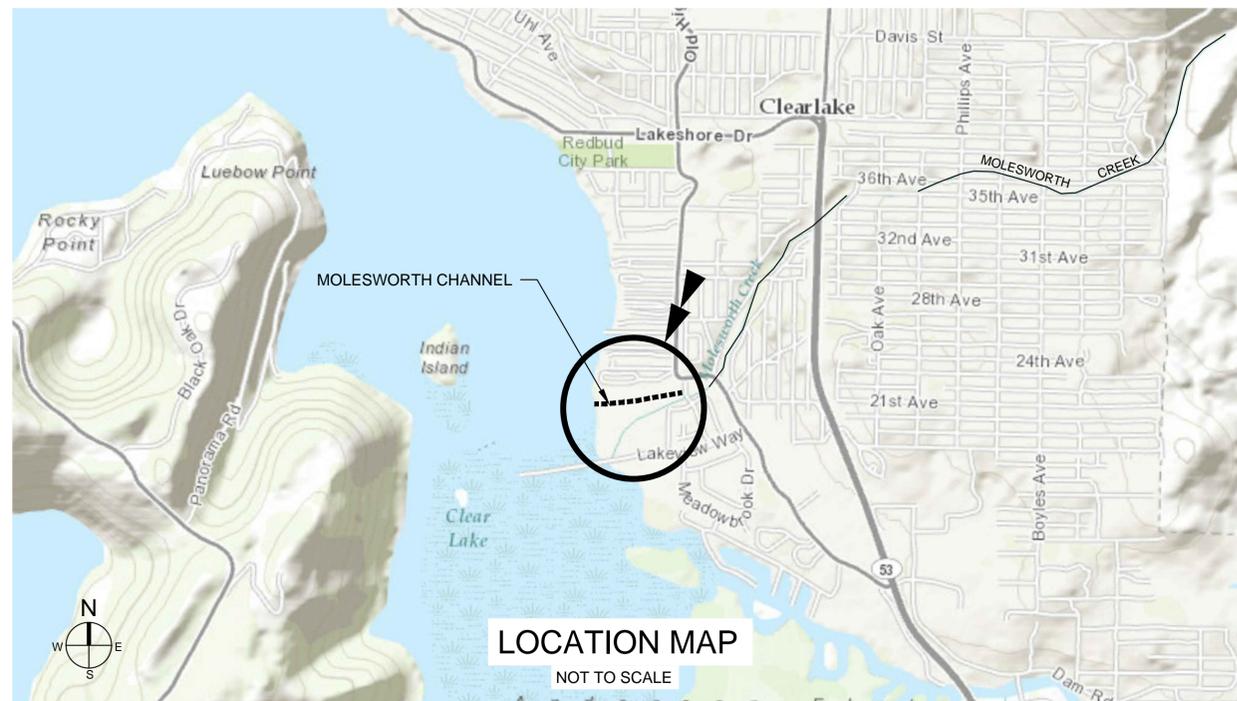
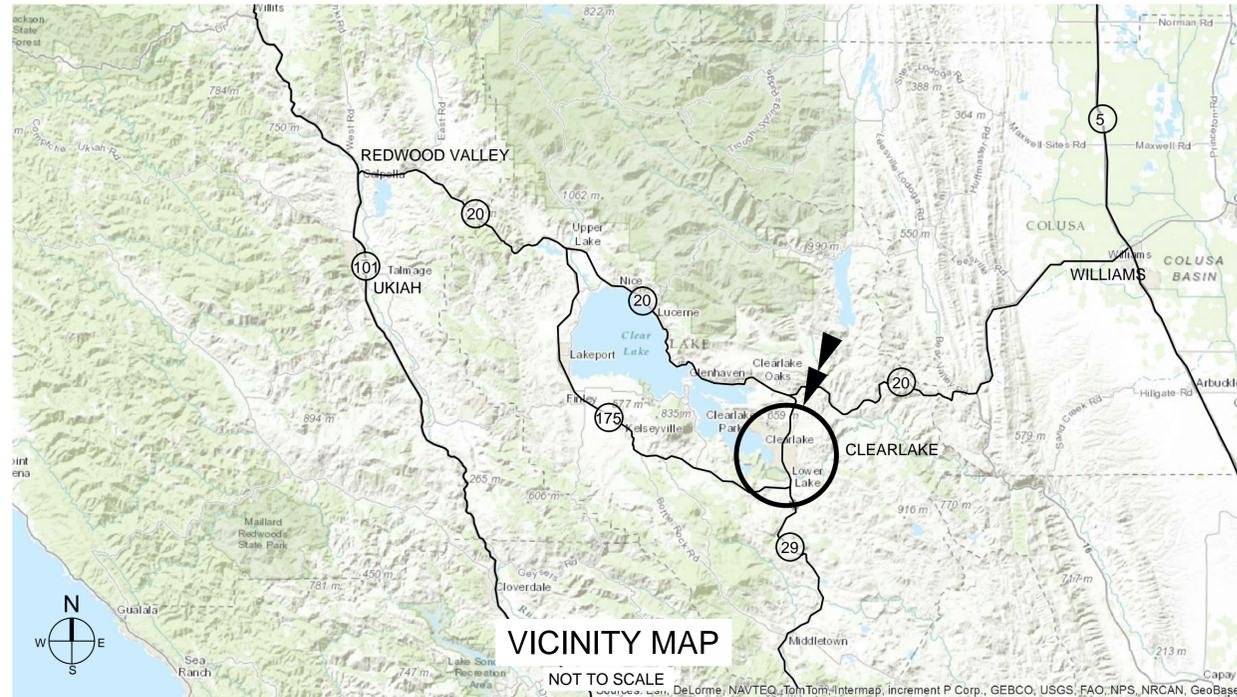
## SCOPE

1. ALL MATERIALS SHOWN OR NOTED ON THE PLANS ARE NEW UNLESS CALLED OUT OTHERWISE.
2. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY ALL EXISTING CONDITIONS SHOWN OR DIMENSIONED HERE. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE STATE PARK REPRESENTATIVE FOR RESOLUTION BEFORE PROCEEDING WITH THAT PORTION OF THE WORK.
3. ALL WORK SHALL COMPLY WITH THE CURRENT EDITION AT DATE OF PLAN APPROVAL OF THE FOLLOWING LISTED CODES, AND ALL OTHERS HAVING JURISDICTION OVER THE WORK.  
2013 EDITION OF THE CALIFORNIA BUILDING CODE.  
2013 EDITION OF THE CALIFORNIA FIRE CODE.  
2013 EDITION OF THE CALIFORNIA ELECTRICAL CODE.  
2013 EDITION OF THE CALIFORNIA MECHANICAL CODE.  
2013 EDITION OF THE CALIFORNIA PLUMBING CODE.  
FEDERAL ACCESSIBILITY STANDARDS.
4. CONDUCT ALL WORK IN ACCORDANCE WITH THE LATEST SAFETY RULES AND REGULATIONS OF ALL AUTHORITIES AND AGENCIES HAVING JURISDICTION OVER THE WORK.
5. ALL WORK SHALL BE IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS. WHERE DETAILED INFORMATION OR CLARIFICATION IS REQUIRED THE MATTER SHALL BE REFERRED TO THE STATE PARK REPRESENTATIVE FOR WRITTEN RESOLUTION.
6. IF A DISCREPANCY OCCURS OR NO DIMENSION IS GIVEN, THE CONTRACTOR SHALL NOTIFY THE STATE PARK REPRESENTATIVE FOR WRITTEN CLARIFICATION BEFORE PROCEEDING WITH THAT PORTION OF THE WORK.
7. PROTECT TREE ROOTS PER SPECIFICATION SECTION 02231, HAND DIG IF NECESSARY.
8. PROTECT AREAS OF ARCHEOLOGICAL RESOURCES PER SPECIFICATION SECTION XXXXX, HAND DIG AS INDICATED ON PLANS.

## GENERAL NOTES

1. BUILDING CONSTRUCTION TYPE	N/A
2. OCCUPANCY CLASSIFICATION	N/A
3. NUMBER OF STORIES	N/A
4. ACTUAL BUILDING HEIGHT	N/A
5. BUILDING AREA IN SQUARE FEET	N/A
6. AREA OF PROJECT IN SQUARE FEET (i.e. TENANT IMPROVEMENTS)	N/A
7. ALLOWABLE AREA PER C.B.C.	N/A
8. AREA AND/OR HEIGHT INCREASES	N/A
9. FIRE SPRINKLERED (YES OR NO)	N/A
10. FIRE ALARM (YES OR NO)	N/A
11. OTHER FIRE PROTECTION SYSTEMS IF ANY	N/A
12. SMOKE CONTROL SYSTEM (YES OR NO)	N/A

## BUILDING CODE REVIEW



#	SHEET	TITLE
<b>CIVIL ENGINEERING SHEETS</b>		
1	C0.0	COVER SHEET
2	C0.1	SYMBOLS AND MATERIALS LEGENDS
3	C1.0	OVERALL SITE IMPROVEMENT PLAN
4	C1.1	MOBILIZATION AND STAGING PLAN
5	C2.0	GRADING PLAN: STATION 0+00 TO 3+75
6	C2.1	GRADING PLAN: STATION 3+75 TO 9+00
7	C2.2	GRADING PLAN: STATION 9+00 TO 13+73
8	C2.3	GRADING CROSS SECTIONS
9	C3.0	REVEGETATION PLAN: STATION 0+00 TO 12+80
10	C4.0	EROSION CONTROL PLAN: STATION 0+00 TO 13+73
11	C5.0	ENGINEERING DETAILS
12	C5.1	TURF REINFORCED MAT DETAILS
13	C5.2	EROSION CONTROL AND TREE PROTECTION DETAILS
14	C6.0	ARCHEOLOGICAL RESOURCES (NOT FOR PUBLIC DISTRIBUTION)

## SHEET INDEX

1. HYDROLOGIC AND HYDRAULIC ANALYSIS FOR MOLESWORTH CREEK, ANDERSON MARSH STATE HISTORIC PARK, CLEARLAKE, LAKE COUNTY, CALIFORNIA. PREPARED BY FALL CREEK ENGINEERING, DECEMBER 2013
2. BASIS OF DESIGN CHANNEL STABILIZATION - MOLESWORTH CREEK, ANDERSON MARSH STATE HISTORIC PARK, CLEARLAKE, LAKE COUNTY, CALIFORNIA. PREPARED BY FALL CREEK ENGINEERING, DECEMBER 2013
3. MOLESWORTH CHANNEL STABILIZATION PROJECT SUPPLEMENTARY SCOPING DOCUMENT. PREPARED BY FAR WEST ANTHROPOLOGICAL RESEARCH GROUP, INC., NOVEMBER 2013.

## PROJECT REPORT REFERENCES

<b>CIVIL ENGINEER</b> CONTACT: PETER HAASE, PE P: (831) 426-9054 F: (831) 426-4932	FALL CREEK ENGINEERING, INC PO BOX 7894 SANTA CRUZ, CA 95061
<b>ARCHEOLOGIST/ANTHROPOLOGIST</b> CONTACT: GREG WHITE P: (530) 756-3941 F: (530) 756-0811	FAR WESTERN ANTHROPOLOGICAL RESEARCH GROUP, INC. 2727 DEL RIO PLACE, SUITE A DAVIS, CA 95618
<b>SURVEYOR</b> CONTACT: NICHOLAS LABEDZKI, LS	NATURAL RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION

## CONSULTANT INFORMATION

8825 CALIFORNIA HIGHWAY 53  
ANDERSON MARSH STATE HISTORIC PARK  
LAKE COUNTY  
LOWER LAKE, CA 95457  
CLEAR LAKE SECTOR,  
NORTHERN BUTTES DISTRICT

## PARK ADDRESS

- AC ACRE
- APX APPROXIMATELY
- CL CENTER LINE
- CP CONTROL POINT
- CMP CORRUGATED METAL PIPE
- CU YD CUBIC YARDS
- DIA/Ø DIAMETER
- DBH DIAMETER AT BREAST HEIGHT
- EL ELEVATION
- (E) EXISTING
- FG FINISHED GRADE/GROUND
- GAL GALLONS
- H:V HORIZONTAL:VERTICAL
- MAX MAXIMUM
- MIN MINIMUM
- (N) NEW
- OC ON CENTER
- PSI POUNDS PER SQUARE INCH
- STA STATION
- SQ FT SQUARE FOOT
- TBD TO BE DETERMINED
- TBR TO BE REMOVED
- TBT TO BE TRANSPLANTED
- TRM TURF REINFORCED MAT
- U UNKNOWN

ABBREVIATIONS

GRADING VOLUME SUMMARY				
NAME	EARTHWORK AREA (SQ FT)	CUT (CU YD)	FILL (CU YD)	NET (CU YD)
AREA 1	1,650	6.1	16.4	10.3<FILL>
AREA 1 - KEY AND BENCH	-	12.0	12.0	0.0
AREA 2	4,700	39.0	25.9	13.1<CUT>
AREA 3	9,200	125.2	21.7	103.5 <CUT>
AREA 4	10,000	77.6	76.5	1.1<CUT>
TRENCHING	-	83.0	83.0	0.0
SOIL DISPOSAL	5,800	-	107.4	1.74<FILL>
TOTALS	31,350	342.9	342.9	0.0

NOTES: SOIL DISPOSAL AREA IS A 150 FT BY 40 FT AREA WHERE CUT MATERIAL IS TO BE DISPOSED AT A DEPTH LESS THAN 6". THE STOCKPILE AND STAGING AREA SHALL BE LOCATED WITHIN THE SOIL DISPOSAL AREA.

EARTHWORK QUANTITIES

- SECTION NUMBER SHEET NUMBER
- DETAIL NUMBER SHEET NUMBER
- REVISION NUMBER
- DIMENSION LINE CENTER LINE
- DIMENSION LINE FACE OF MATERIAL
- PROPERTY BOUNDARY
- EXISTING CONTOUR
- EXISTING GROUND (PROFILE)
- PROPOSED CONTOUR
- FINISHED GROUND (PROFILE)
- LIMIT OF DISTURBANCE
- MATCH LINE BOUNDARY
- STABILIZATION AREA OUTLINE
- TOP OF BANK
- BOTTOM OF BANK
- SPLIT RAIL FENCE
- TREE PROTECTION ZONE
- (E) ABOVE GROUND PIPE
- TURF REINFORCED MAT (TRM)
- EROSION CONTROL BLANKET
- FLOW DIRECTION
- ROCK PROTECTION
- (E) TREES / VEGETATED AREA
- COTTONWOOD (POPULUS FREMONII)
- BLUE OAK (QUERUS DOUGLASII)
- VALLEY OAK (QUERCUS LOBATA)
- FOOTHILL PINE (PINUS SABINIANA)
- SURVEY CONTROL POINT

SYMBOLS LEGEND

- DIRT PATH
- PAVED ROAD
- UNDISTURBED SOIL
- GRAVEL
- ACORN AND NATIVE GRASS SEED
- STRAW AND SEED
- NATIVE SEED MIX
- TRM TREATMENT AREA
- ZONE OF ARCHEOLOGICAL SIGNIFICANCE
- STOCKPILING AND STAGING AREA/ SOIL DISPOSAL AREA

MATERIAL LEGEND



ACQUISITION & DEVELOPMENT DIVISION  
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95814-3229



CALIFORNIA STATE FIRE MARSHAL- APPROVED

Approval of this plan does not authorize or approve any omission of deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on the project site at all times.

Reviewed by \_\_\_\_\_ Date \_\_\_\_\_

DPR ACCESS COMPLIANCE REVIEW ACCESSIBILITY SECTION CERTIFICATION # \_\_\_\_\_

Reviewed by \_\_\_\_\_ Date \_\_\_\_\_

ACCESSIBILITY COMPLIANCE AND STATE FIRE MARSHAL SIGNED ORIGINALS ARE ON FILE AT THE DEPARTMENT OF PARKS AND RECREATION, NORTHERN SERVICE CENTER

DESIGNED: RLC  
DRAWN: RLC, EMC, TBG  
CHECKED: PHH  
DATE: 03-14-2014

REVISIONS	
NO.	DATE

MOLESWORTH CHANNEL EROSION STABILIZATION  
SYMBOLS AND MATERIALS  
LEGENDS

DRAWING NO.  
30287.002

SHEET NO.  
C0.1  
002 OF 014



ACQUISITION & DEVELOPMENT DIVISION  
One Capitol Mall  
Sacramento, CA  
95814-3229



CALIFORNIA STATE FIRE MARSHAL - APPROVED  
Approval of this plan does not authorize or approve any omission of deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on the project site at all times.

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DPR ACCESS COMPLIANCE REVIEW ACCESSIBILITY SECTION  
CERTIFICATION # \_\_\_\_\_  
Reviewed by \_\_\_\_\_ Date \_\_\_\_\_  
ACCESSIBILITY COMPLIANCE AND STATE FIRE MARSHAL SIGNED ORIGINALS ARE ON FILE AT THE DEPARTMENT OF PARKS AND RECREATION, NORTHERN SERVICE CENTER

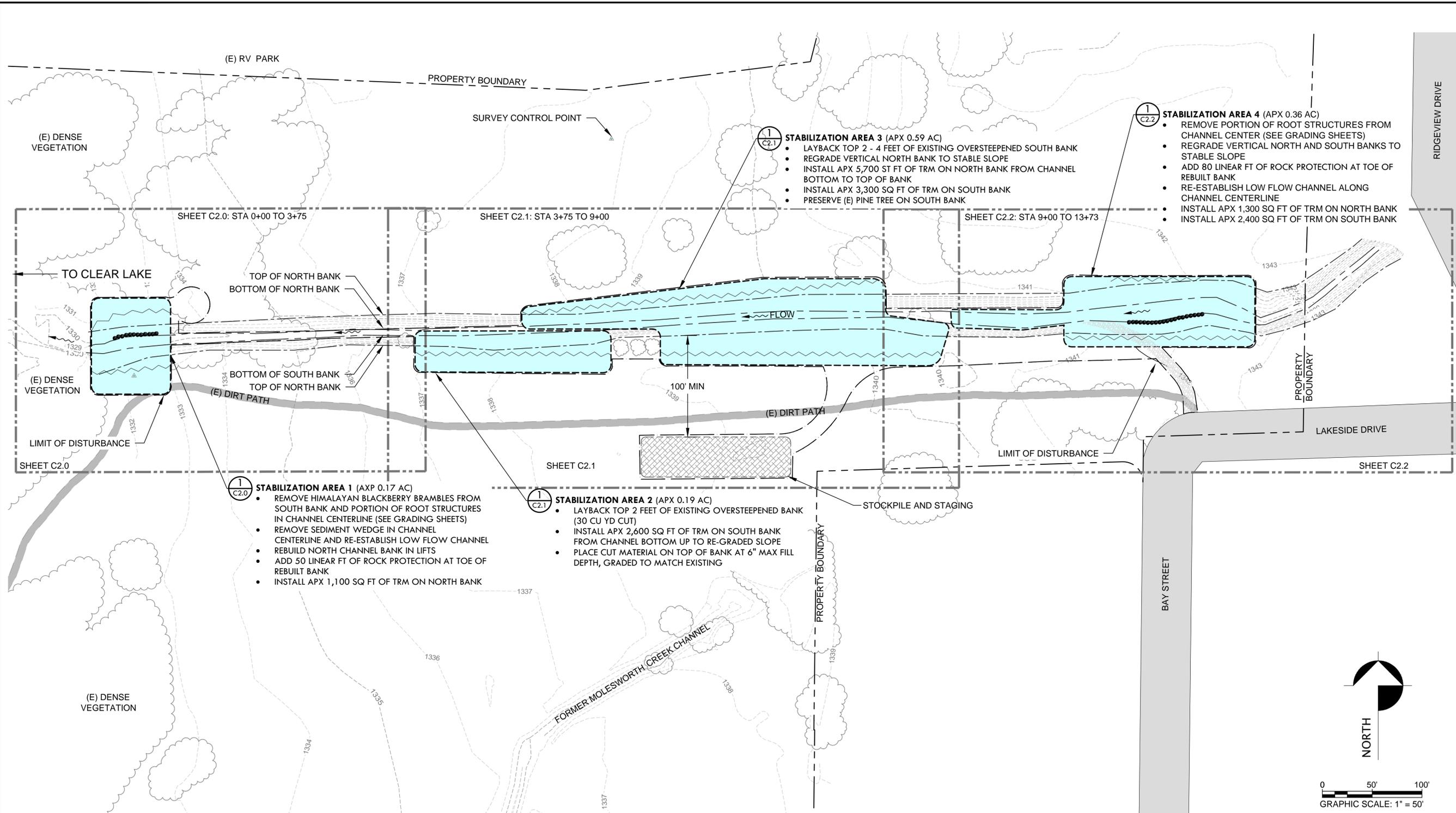
DESIGNED: RLC  
DRAWN: RLC, EMC, TBG  
CHECKED: PHH  
DATE: 03-14-2014

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NO.	DATE

MOLESWORTH CHANNEL EROSION STABILIZATION  
**OVERALL SITE IMPROVEMENT PLAN**

DRAWING NO.  
**30287.003**

SHEET NO.  
**C1.0**  
003 OF 014

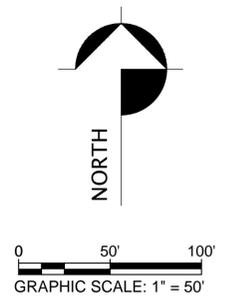


- STABILIZATION AREA 1 (APX 0.17 AC)**
- REMOVE HIMALAYAN BLACKBERRY BRAMBLES FROM SOUTH BANK AND PORTION OF ROOT STRUCTURES IN CHANNEL CENTERLINE (SEE GRADING SHEETS)
  - REMOVE SEDIMENT WEDGE IN CHANNEL CENTERLINE AND RE-ESTABLISH LOW FLOW CHANNEL
  - REBUILD NORTH CHANNEL BANK IN LIFTS
  - ADD 50 LINEAR FT OF ROCK PROTECTION AT TOE OF REBUILT BANK
  - INSTALL APX 1,100 SQ FT OF TRM ON NORTH BANK

- STABILIZATION AREA 2 (APX 0.19 AC)**
- LAYBACK TOP 2 FEET OF EXISTING OVERSTEEPENED BANK (30 CU YD CUT)
  - INSTALL APX 2,600 SQ FT OF TRM ON SOUTH BANK FROM CHANNEL BOTTOM UP TO RE-GRADED SLOPE
  - PLACE CUT MATERIAL ON TOP OF BANK AT 6" MAX FILL DEPTH, GRADED TO MATCH EXISTING

- STABILIZATION AREA 3 (APX 0.59 AC)**
- LAYBACK TOP 2 - 4 FEET OF EXISTING OVERSTEEPENED SOUTH BANK
  - REGRADE VERTICAL NORTH BANK TO STABLE SLOPE
  - INSTALL APX 5,700 ST FT OF TRM ON NORTH BANK FROM CHANNEL BOTTOM TO TOP OF BANK
  - INSTALL APX 3,300 SQ FT OF TRM ON SOUTH BANK
  - PRESERVE (E) PINE TREE ON SOUTH BANK

- STABILIZATION AREA 4 (APX 0.36 AC)**
- REMOVE PORTION OF ROOT STRUCTURES FROM CHANNEL CENTER (SEE GRADING SHEETS)
  - REGRADE VERTICAL NORTH AND SOUTH BANKS TO STABLE SLOPE
  - ADD 80 LINEAR FT OF ROCK PROTECTION AT TOE OF REBUILT BANK
  - RE-ESTABLISH LOW FLOW CHANNEL ALONG CHANNEL CENTERLINE
  - INSTALL APX 1,300 SQ FT OF TRM ON NORTH BANK
  - INSTALL APX 2,400 SQ FT OF TRM ON SOUTH BANK



**OVERALL SITE IMPROVEMENT PLAN**  
SCALE: 1" = 50' @ 22" x 34"

DISTURBANCE AREA SUMMARY		
NAME	AREA (SQ FT)	AREA (ACRES)
STABILIZATION AREA 1	7,600	0.174
STABILIZATION AREA 2	8,120	0.186
STABILIZATION AREA 3	25,800	0.592
STABILIZATION AREA 4	15,600	0.358
SUB TOTAL AREA OF DISTURBANCE	57,120	1.31
STOCKPILE AND STAGING/SOIL DISPOSAL	6,000	0.1
CONSTRUCTION ACCESS	16,430	0.4
CONSTRUCTION ENTERENCE	1,450	0.03
TOTAL AREA OF DISTURBANCE	81,000	1.9

22" x 34" SHEET. IF SHEET SIZE IS SMALLER, THEN DRAWING HAS BEEN REDUCED.





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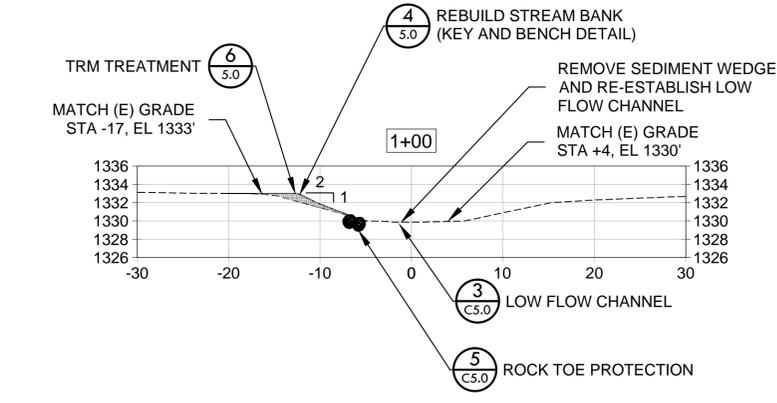
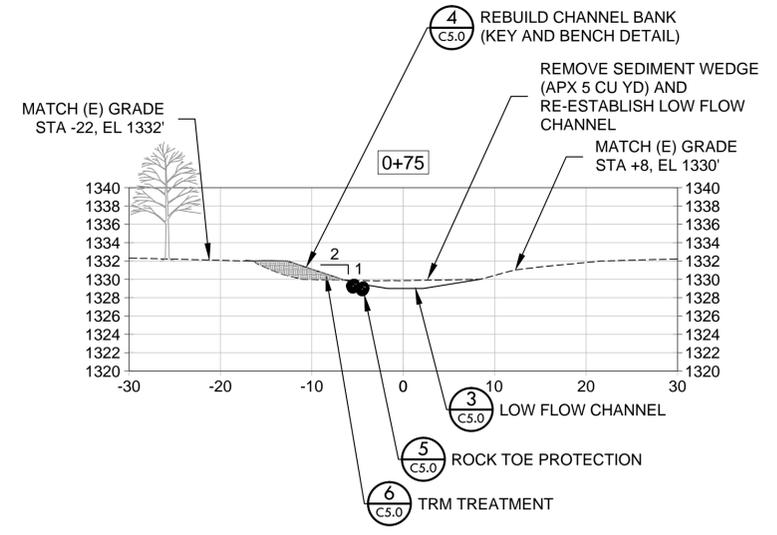
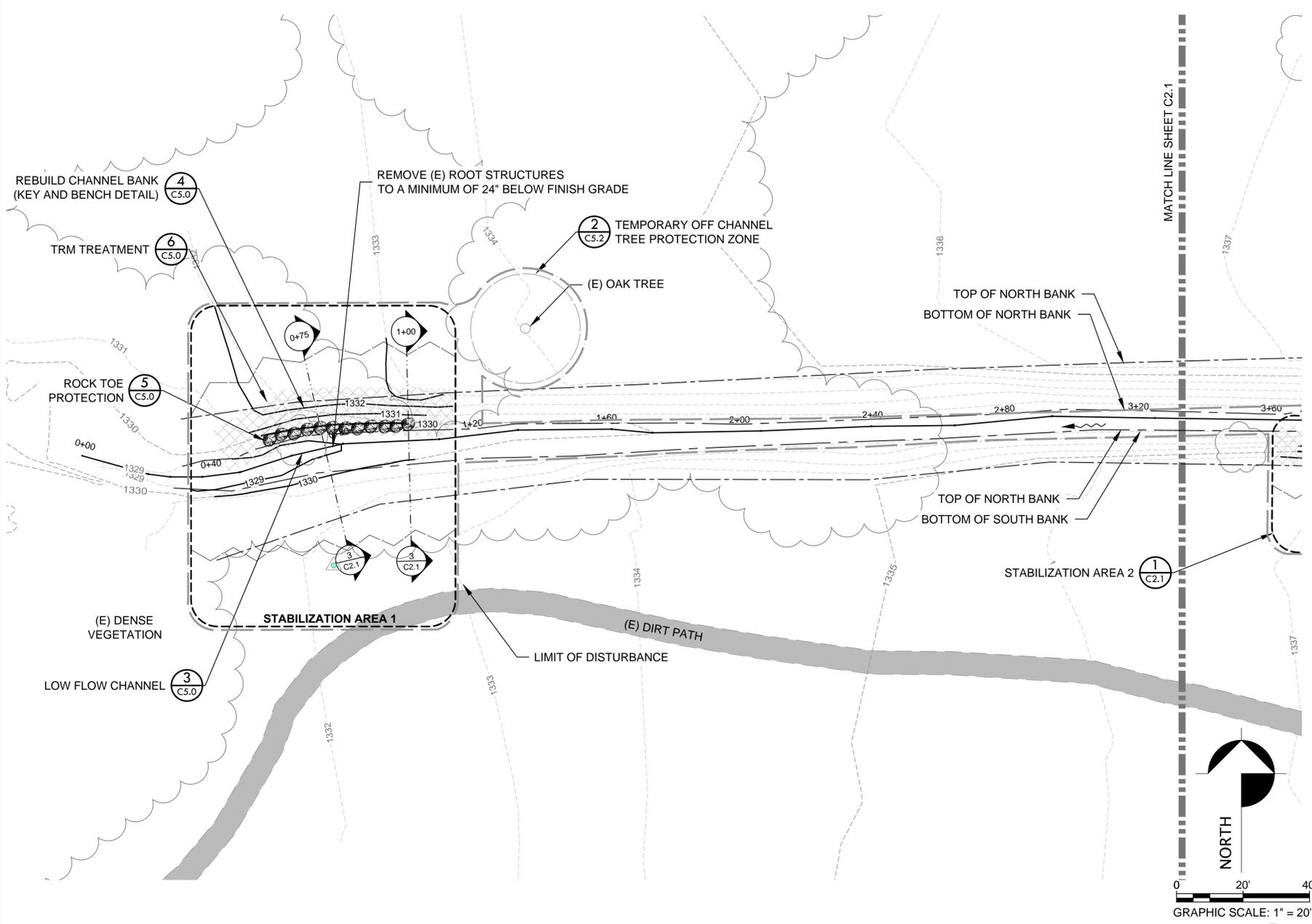
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MOLESWORTH CHANNEL EROSION STABILIZATION

**GRADING PLAN:  
STATION 0+00 TO 3+75**

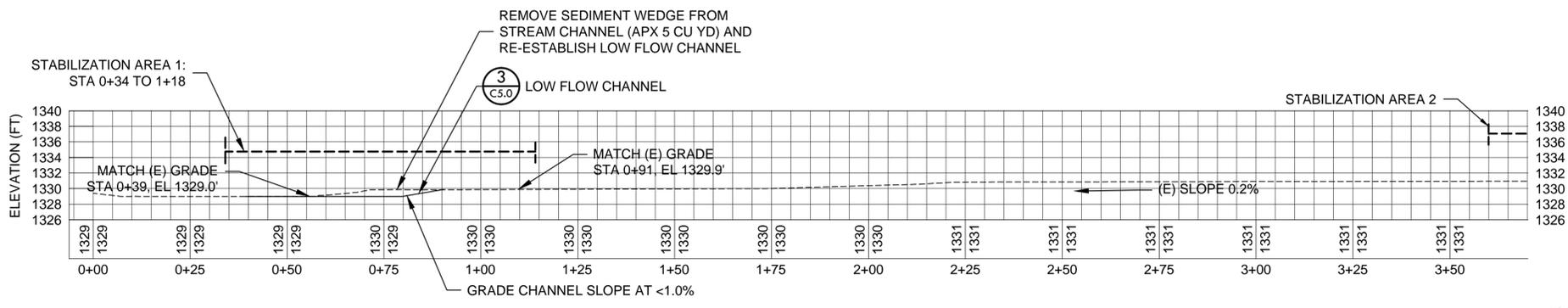
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005 OF 014



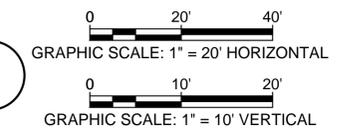
**GRADING PLAN: STATION 0+00 TO 3+75**  
SCALE: 1" = 20' @ 22" x 34"

**CROSS SECTIONS AT STATION 0+75 AND 1+00**  
SCALE: 1" = 10' @ 22" x 34"



**PROFILE VIEW: STATION 0+00 TO 3+75**  
SCALE: 1" = 20' HORIZONTAL, 1" = 10' VERTICAL @ 22" x 34"

- NOTES:
1. ARCHEOLOGICAL RESOURCES EXIST BUT HAVE NOT BEEN SHOW DUE TO THE SENSITIVE NATURE OF THE THIS WORK. SEE SHEET C6.0 FOR ADDITIONAL INFORMATION.
  2. SECTIONS ARE LOOKING UPSTREAM.
  3. CENTER LINE IS AT STATION ZERO IN THE CROSS SECTIONS.



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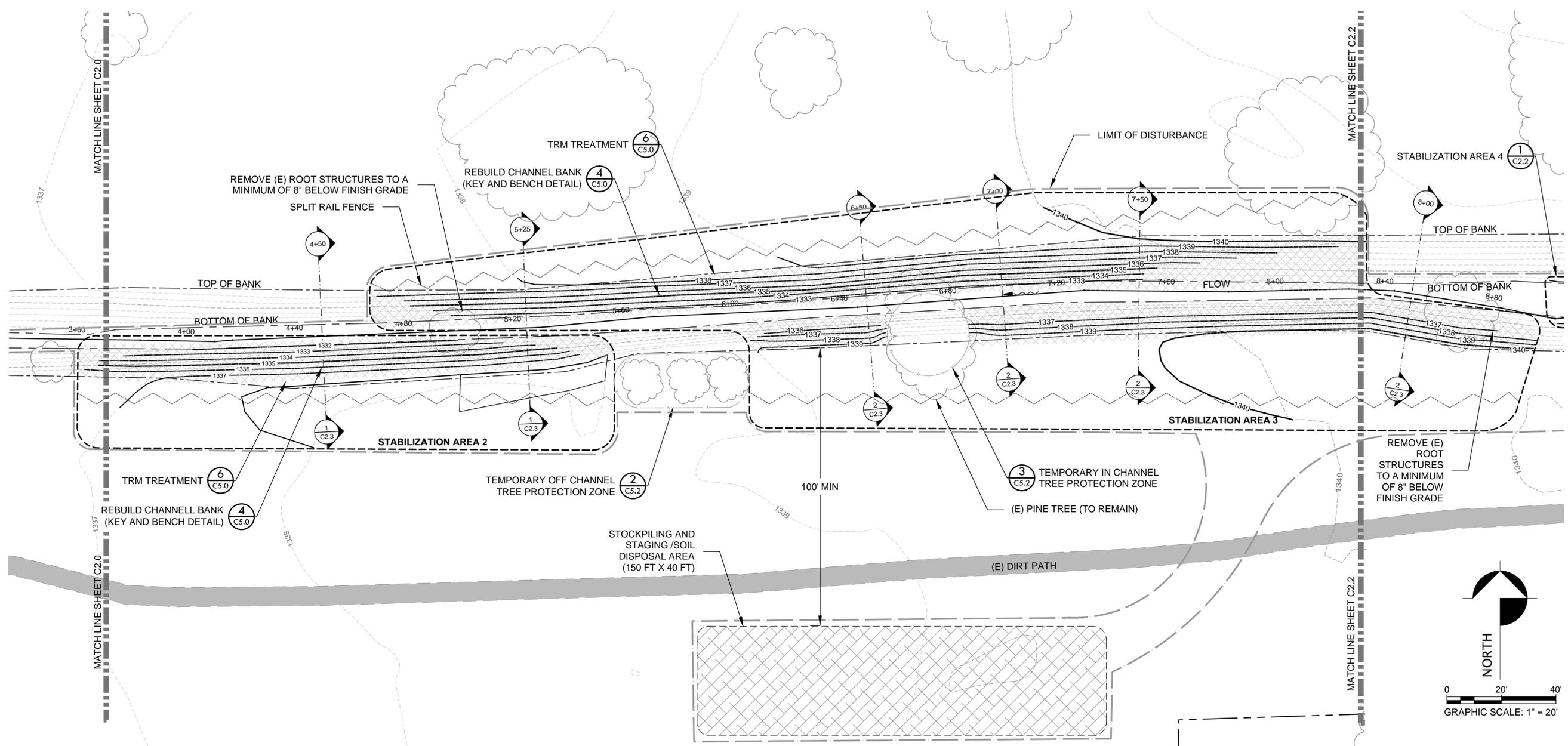
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MOLESWORTH CHANNEL EROSION STABILIZATION  
**GRADING PLAN:  
STATION 3+75 TO 9+00**

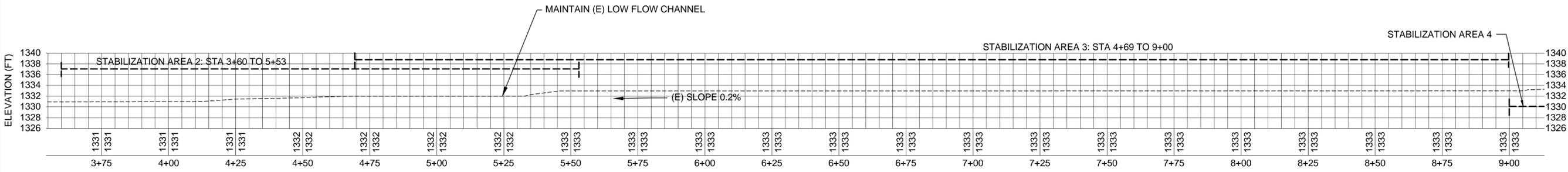
DRAWING NO.  
30287.006

SHEET NO.  
**C2.1**

006 OF 014



**GRADING PLAN: STATION 3+75 TO 9+00**  
SCALE: 1" = 20' @ 22" x 34"



**PROFILE VIEW: STATION 3+75 TO 9+00**  
SCALE: 1" = 20' HORIZONTAL, 1" = 10' VERTICAL @ 22" x 34"



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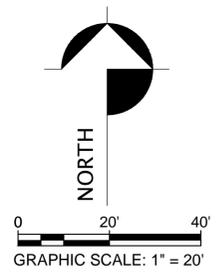
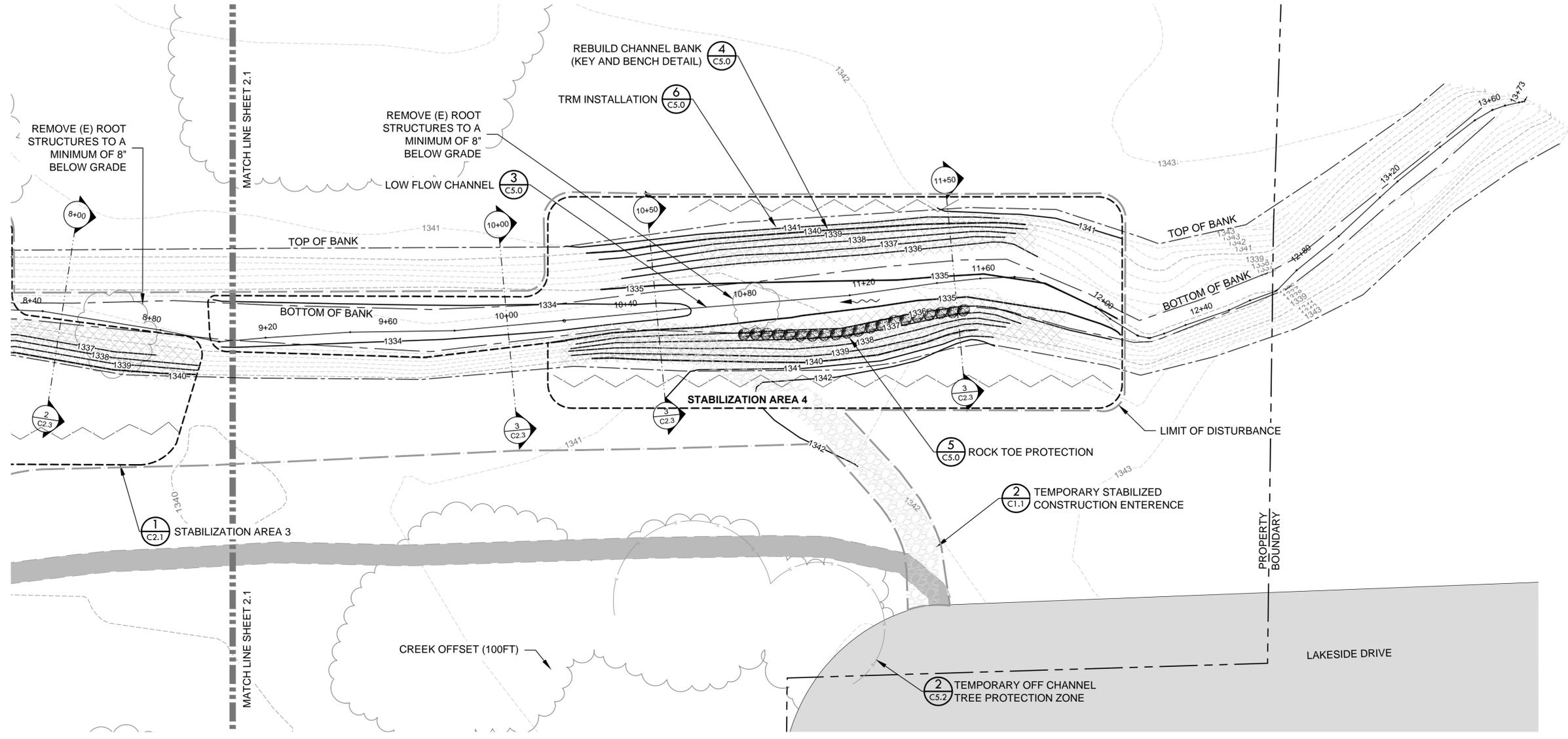
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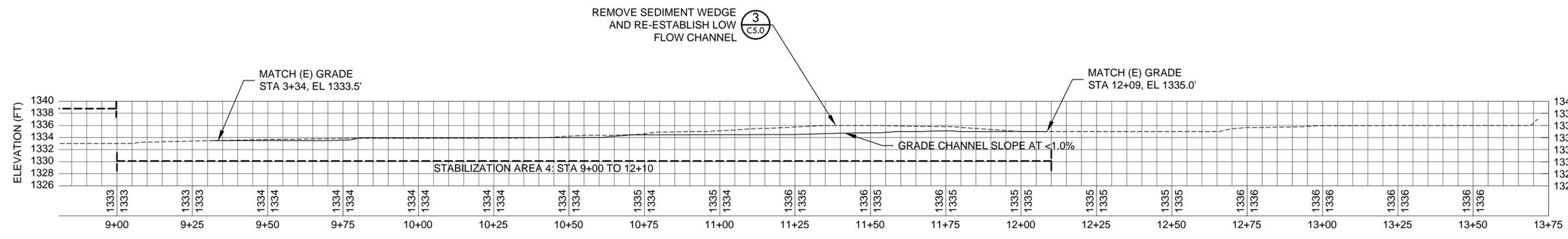
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DATE: 03-14-2014

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**GRADING PLAN: STATION 9+00 TO 13+73**  
SCALE: 1" = 20' @ 22" x 34"

1



**PROFILE VIEW: STATION 9+00 TO 13+73**  
SCALE: 1" = 20' HORIZONTAL, 1" = 10' VERTICAL @ 22" x 34"

2

MOLESWORTH CHANNEL EROSION STABILIZATION  
**GRADING PLAN:  
STATION 9+00 TO 13+73**

DRAWING NO.  
30287.007

SHEET NO.  
**C2.2**  
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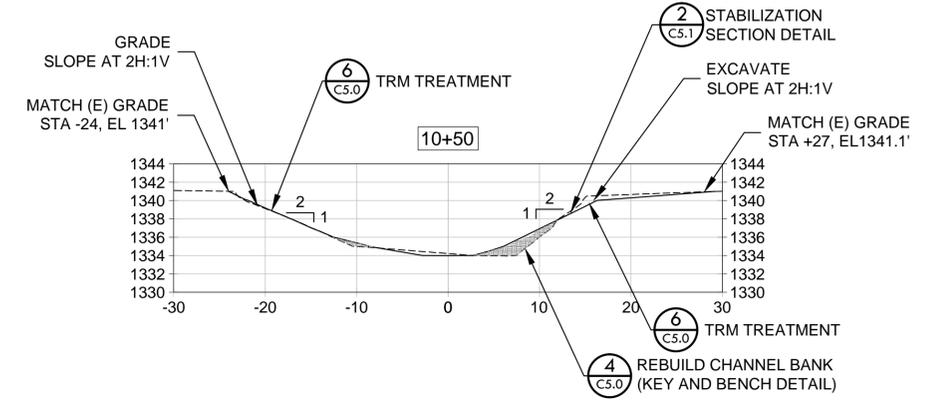
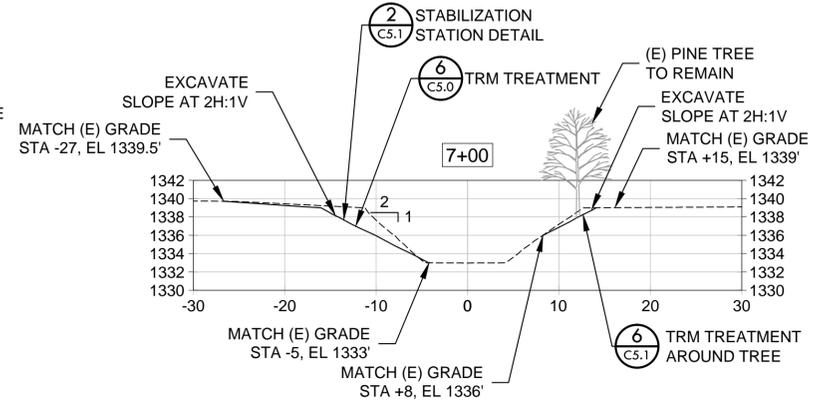
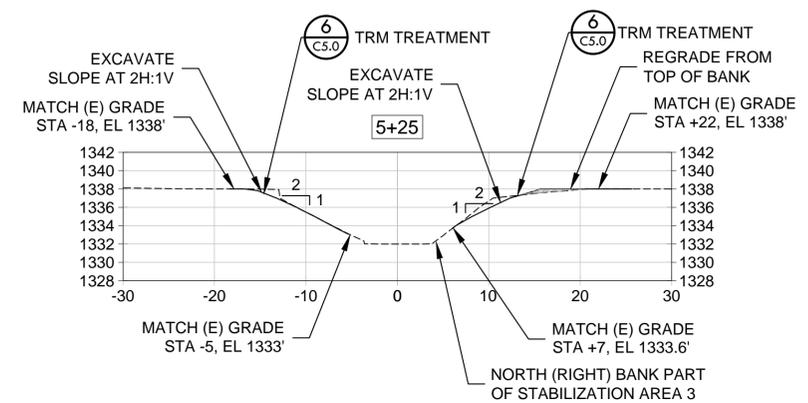
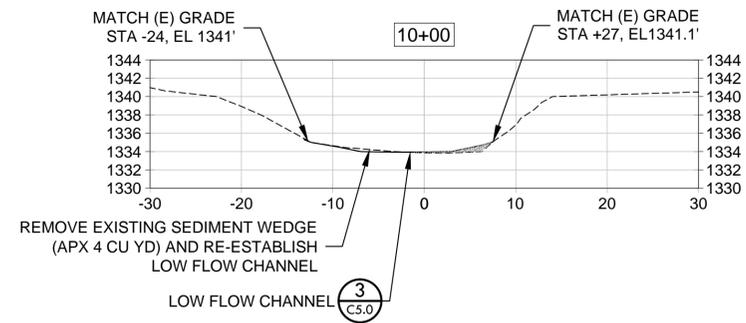
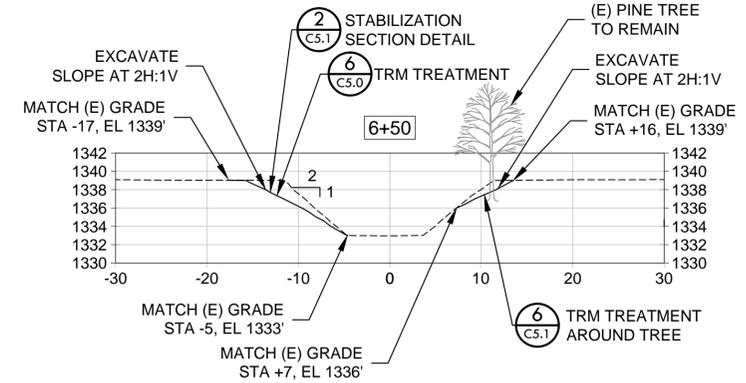
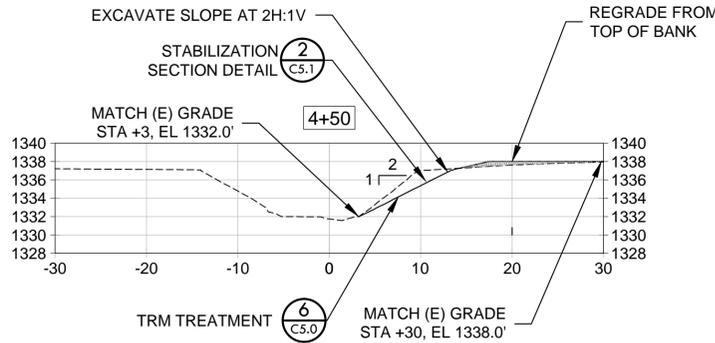
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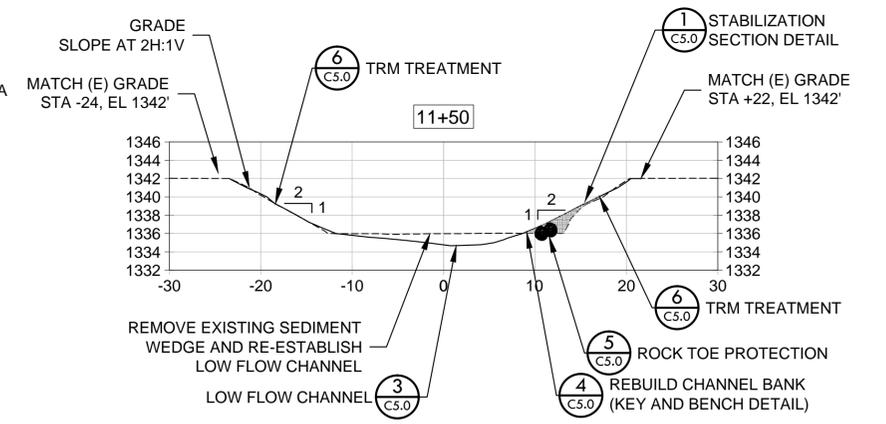
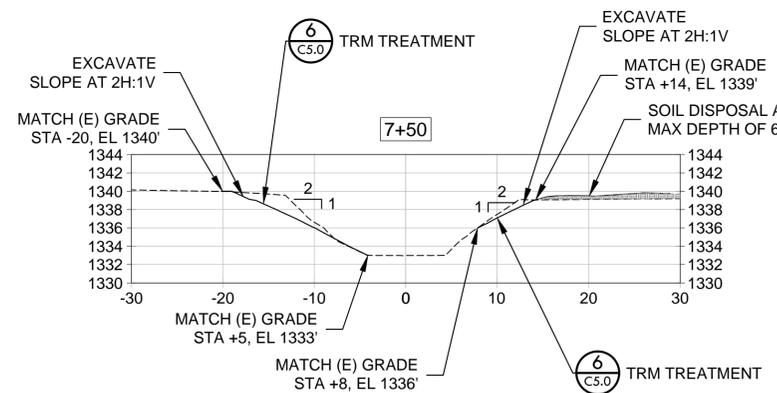
MOLESWORTH CHANNEL EROSION STABILIZATION  
GRADING CROSS SECTIONS

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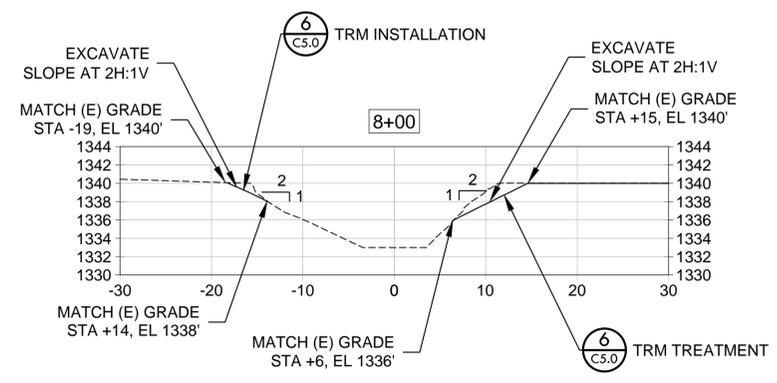
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008 OF 014



**STABILIZATION AREA 2: CROSS SECTIONS 4+50 & 5+25**  
SCALE: 1" = 10' @ 22" x 34"

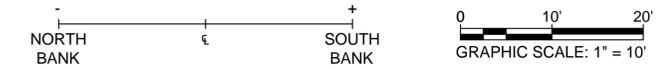


**STABILIZATION AREA 4: CROSS SECTIONS 10+00, 10+50 & 11+50**  
SCALE: 1" = 10' @ 22" x 34"



**STABILIZATION AREA 3: CROSS SECTIONS 6+50, 7+00, 7+50 & 8+00**  
SCALE: 1" = 10' @ 22" x 34"

- NOTES:
1. ARCHEOLOGICAL RECOUSES EXIST BUT HAVE NOT BEEN SHOW DUE TO THE SENSITIVE NATURE OF THE THIS WORK. SEE SHEET C6.0 FOR ADDITIONAL INFORMATION.
  2. SECTIONS ARE LOOKING UPSTREAM.
  3. CENTER LINE OF CHANNEL IS AT STATION ZERO IN THE CROSS SECTIONS.





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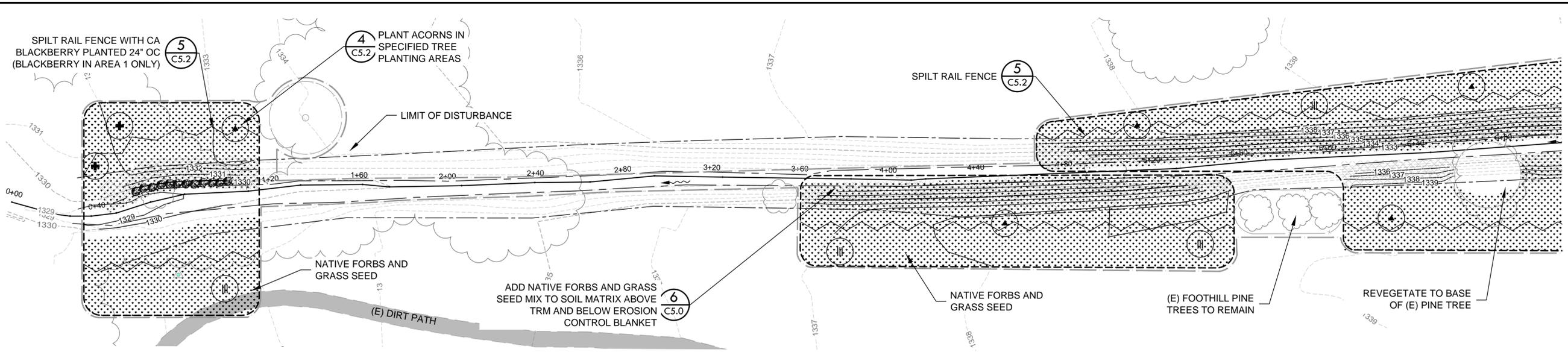
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MOLESWORTH CHANNEL EROSION STABILIZATION  
**REVEGETATION PLAN**  
STATION 0+00 TO 13+73

DRAWING NO.  
30287.009

SHEET NO.  
**C3.0**

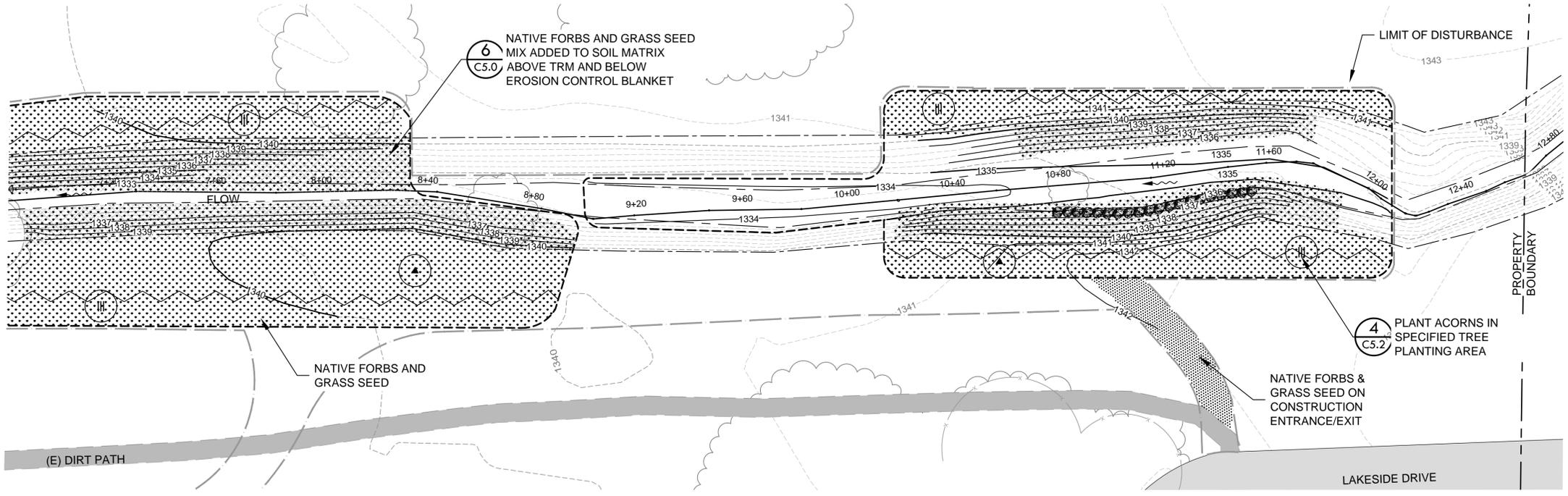
009 OF 014



**REVEGETATION PLAN: STATION 0+00 TO 7+00**

SCALE: 1" = 25' @ 22" x 34"

1



**REVEGETATION PLAN: STATION 7+00 TO 12+80**

SCALE: 1" = 25' @ 22" x 34"

2

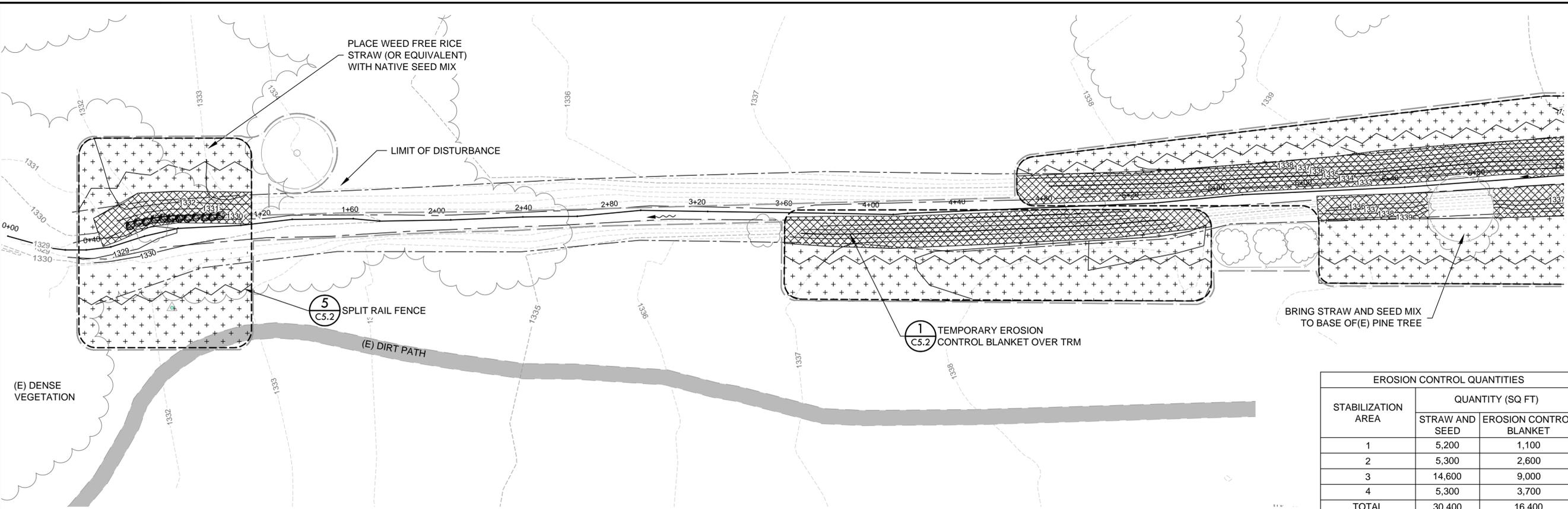
REVEGETATION QUANTITIES	
LOCATION	QUANTITY (SQ FT)
	NATIVE FORBS & GRASS SEED
STABILIZATION AREA 1	6,300
STABILIZATION AREA 2	7,900
STABILIZATION AREA 3	23,600
STABILIZATION AREA 4	9,000
STOCKPILING	4,000
CONSTRUCTION ENTRANCE	800
<b>TOTAL</b>	<b>51,600</b>

COMMON NAME	SCIENTIFIC NAME	TYPE	SEEDING RATE	# PLANTS OR SEEDS
<b>FORBS</b>				
BLUE EYED GRASS	<i>SISYRINCHIUM BELLUM</i>	SEED	3#/AC	3.51#
CALIFORNIA POPPY	<i>ESCHSCHOLZIA CALIFORNICA</i>	SEED	3#/AC	3.51#
YARROW	<i>ACHILLEA MILLEFOLIUM</i>	SEED	2#/AC	2.34#
SKY LUPINE	<i>LUPINUS NANUS</i>	SEED	2#/AC	3.51#
<b>GRASSES</b>				
BLUE WILDRIE	<i>ELYMUS GLAUCUS</i>	SEED	8#/AC	9.36#
PURPLE NEEDLEGRASS	<i>NASSELLA PULCHRA</i>	SEED	10#/AC	11.7#
MEADOW BARLEY	<i>HORDEUM BRACHYANTHERUM</i>	SEED	6#/AC	7.02#
CALIFORNIA BROME	<i>BROMUS CARINATUS</i>	SEED	6#/AC	7.02#

COMMON NAME	SCIENTIFIC NAME	TYPE	SEEDING RATE	# PLANTS OR SEEDS
<b>SHRUBS</b>				
CALIFORNIA BLACKBERRY	<i>RUBUS URSINUS</i>	CONTAINER	AS SHOWN, AREA-1 ONLY	45
<b>RIPARIAN TREES (AREA 1)</b>				
FREMONT COTTONWOOD	<i>POPULUS FREMONTII</i>	LIVE STAKE	AS SHOWN	2
<b>UPLAND TREES (AREAS 2-4)</b>				
VALLEY OAK	<i>QUERCUS LOBATA</i>	ACORN*	AS SHOWN	9
BLUE OAK	<i>QUERCUS DOUGLASII</i>	ACORN*	AS SHOWN	7

\* 3-4 ACORNS TO BE PLANTED AT EACH LOCATION, AND GRADUALLY THINNED TO ONE PRIMARY PLANT

- NOTES:
1. NATIVE GRASS AND FORB MIX SHOWN IN TABLE.
  2. CA BLACKBERRY SHALL BE USED ALONG SPLIT RAIL FENCE.
  3. ACORN SEED COLLECTION AND PLANTING DURING FALL SEASON FOLLOWING CONSTRUCTION.
  4. THE SOIL DISPOSAL AREA AND PATH TO THE SOIL DISPOSAL AREA SHALL BE REVEGETATED WITH NATIVE FORBS & GRASS SEED.

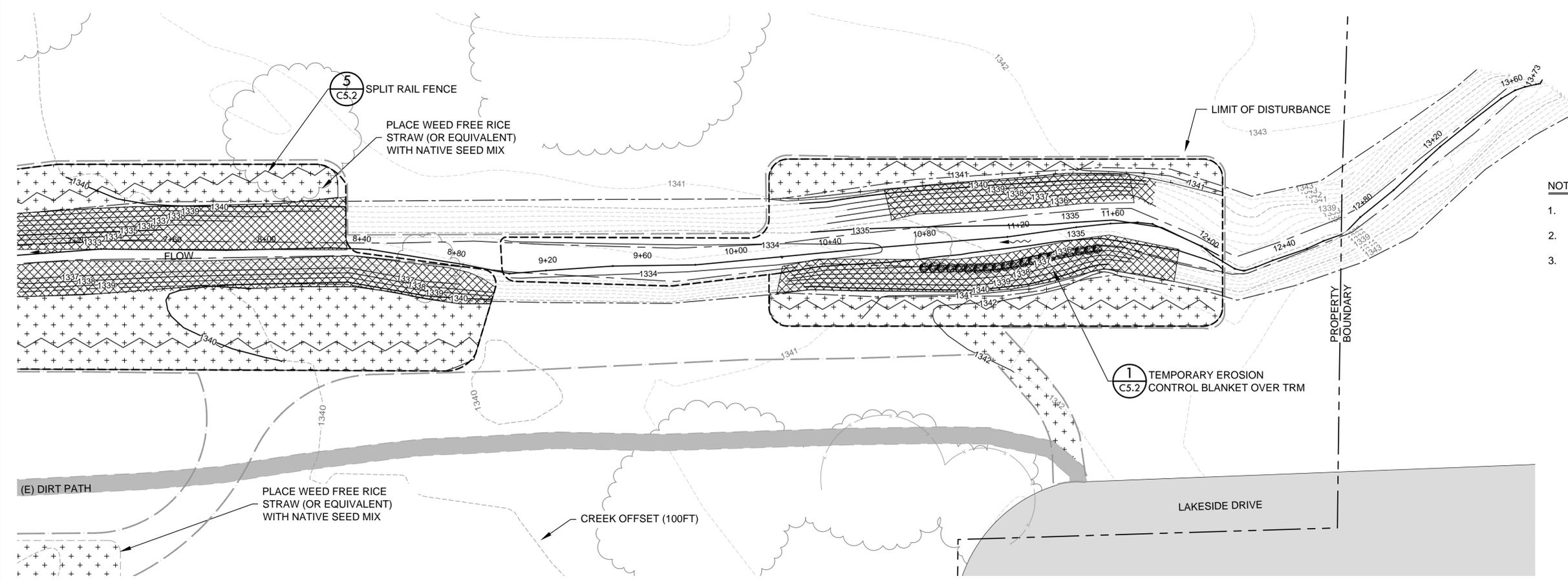


REVEGETATION PLAN: STATION 0+00 TO 7+00

SCALE: 1" = 25' @ 22" x 34"

1

STABILIZATION AREA	QUANTITY (SQ FT)	
	STRAW AND SEED	EROSION CONTROL BLANKET
1	5,200	1,100
2	5,300	2,600
3	14,600	9,000
4	5,300	3,700
TOTAL	30,400	16,400

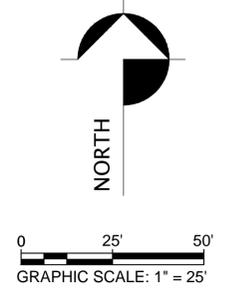


EROSION CONTROL PLAN: STATION 7+00 TO 13+73

SCALE: 1" = 25' @ 22" x 34"

2

- NOTES:
- SEE SHEET C3.0 FOR PLANT LIST.
  - ALL STRAW SHALL BE WEED FREE.
  - NATIVE GRASS SEED SHALL INCLUDE A MIX OF NASSELLA PULCHRA AND LEYMUS TRITICOIDES.



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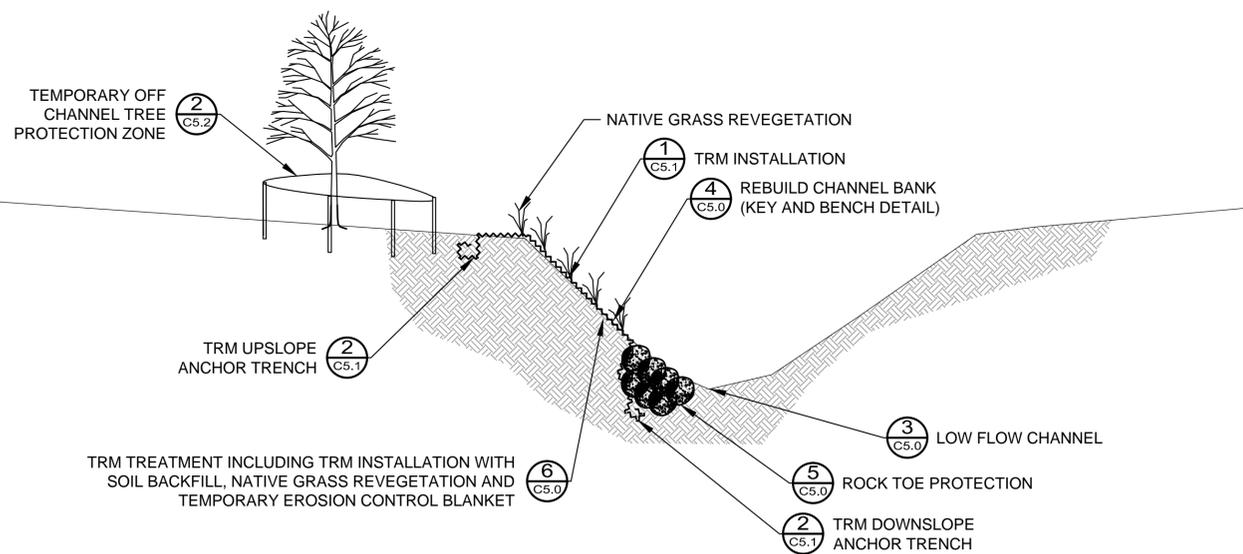
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MOLESWORTH CHANNEL EROSION STABILIZATION  
**EROSION CONTROL PLAN**  
STATION 0+00 TO 13+73

DRAWING NO.  
30287.010

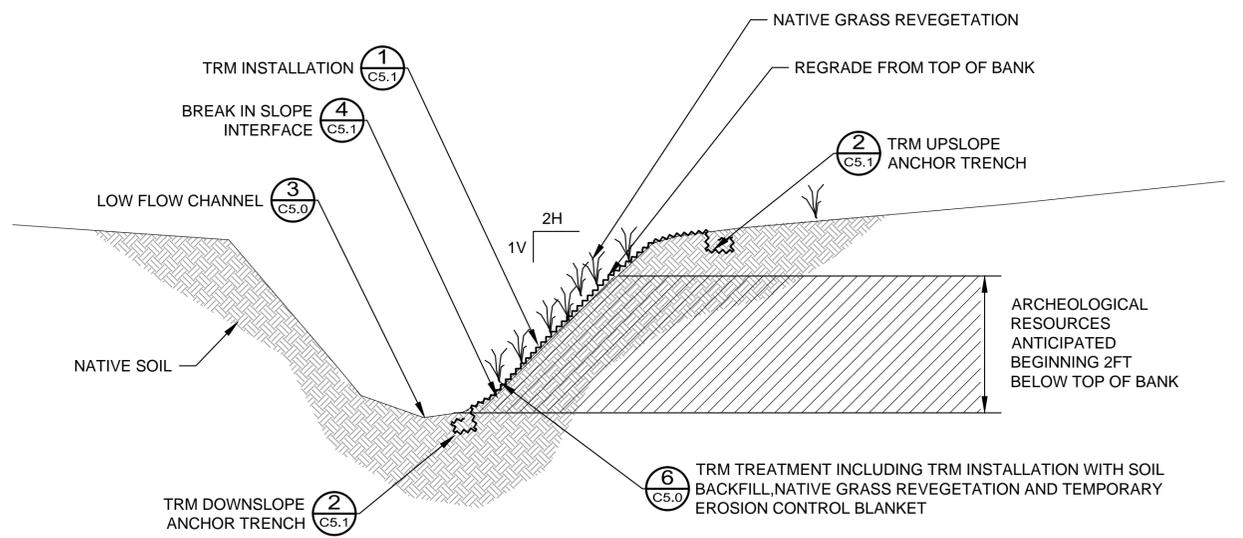
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010 OF 014



TYPICAL STABILIZATION SECTION DETAIL FOR TREATMENT AREAS 1 & 4

1

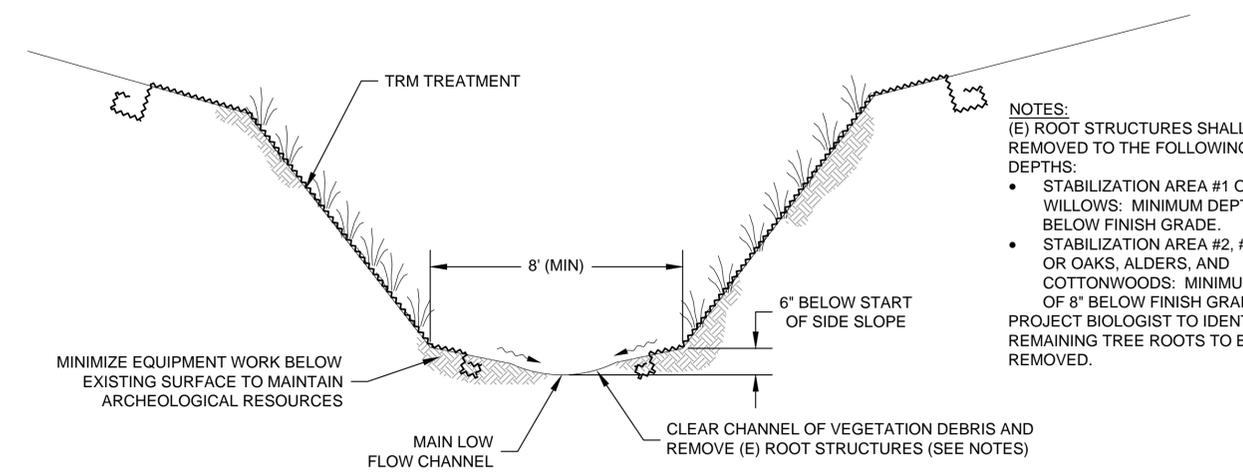
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TYPICAL STBLIZATION SECTION DETAIL FOR TREATMENT AREAS 2, 3, & 4

2

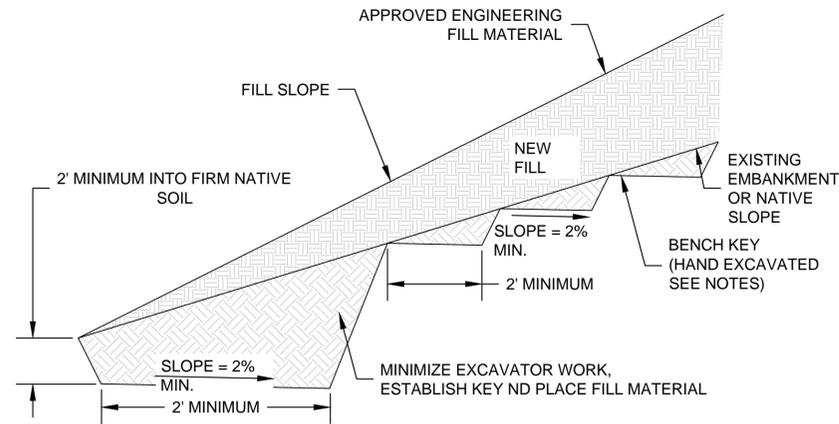
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LOW FLOW CHANNEL

3

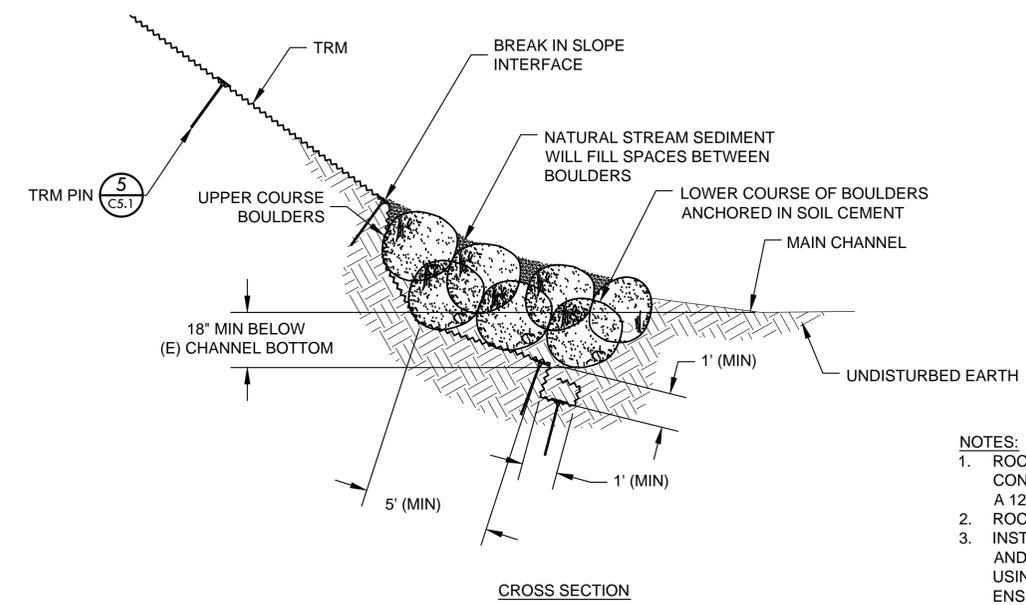
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TYPICAL KEY FOR BANK STABILIZATION IN TREATMENT AREA 1

4

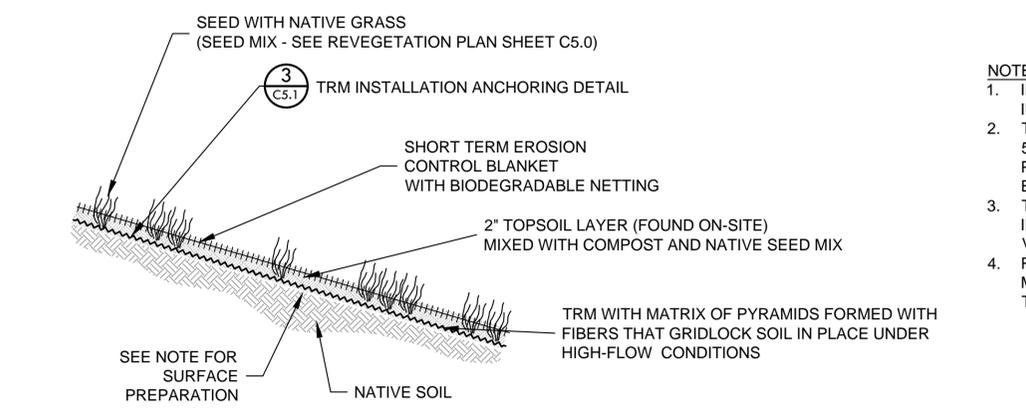
NTS



ROCK TOE PROTECTION TYPICAL

5

NTS



TYPICAL TRM TREATMENT: TRM, TOPSOIL, EROSION CONTROL BLANKET AND SEED

6

NTS

NOTES:

1. DUE TO SENSITIVE ARCHEOLOGICAL RESOURCES THE BENCHES IN TO THE NATIVE MATERIAL WILL BE HAND EXCAVATED.
2. ENGINEERED FILL WILL BE FROM ELSEWHERE ON THE PROJECT SITE AND WILL BE APPROVED BY A STATE PARKS REPRESENTATIVE.
3. DELETERIOUS MATERIAL WITH GREATER THAN 3% ORGANICS AND DEBRIS SHALL NOT BE INCORPORATED INTO EMBANKMENT FILL.
4. ROCK, SOIL, COBBLE, AND BOULDERS SHALL BE SELECTIVELY INCORPORATED, PROVIDED MATERIAL IS LESS THAN 6 INCHES MAX DIAMETER. LARGER MATERIAL SHALL BE LIMITED TO DEEPER PORTIONS OF FILL, AT LEAST 5 FT FROM SURFACE.
5. EMBANKMENT FILL SHALL BE COMPACTED IN HORIZONTAL LIFTS NOT EXCEEDING 8 INCHES. EACH LIFT SHALL BE MOISTURE-CONDITIONED AT OR ABOVE OPTIMUM MOISTURE CONTENT AND COMPACTED TO A MIN 90% RELATIVE COMPACTION.

NOTES:

1. ROCK STABILIZATION SHALL CONSIST OF ANGULAR ROCK WITH A 12" D50.
2. ROCKS WILL BE WELL MIXED, AND TIGHTLY LOCKED TOGETHER USING NATIVE MATERIAL TO ENSURE LOCKED IN PLACE.

NOTES:

1. INSTALL TRM PER MANUFACTURES INSTRUCTIONS.
2. TRM SHALL BE CONSTRUCTED OF 5 MM² OR LESS MESH SIZE TO PREVENT WILDLIFE ENTANGLEMENT.
3. TO PREPARE BANK FOR TRM INSTALLATION CLEAR BANK OF ALL VEGETATION AND DEBRIS.
4. REMOVE ROOT STRUCTURES TO A MINIMUM DEPTH OF 3" BELOW TRM.



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CALIFORNIA STATE FIRE MARSHAL- APPROVED

Approval of this plan does not authorize or approve any omission of deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on the project site at all times.

Reviewed by \_\_\_\_\_ Date \_\_\_\_\_

DPR ACCESS COMPLIANCE REVIEW ACCESSIBILITY SECTION CERTIFICATION # \_\_\_\_\_

Reviewed by \_\_\_\_\_ Date \_\_\_\_\_

ACCESSIBILITY COMPLIANCE AND STATE FIRE MARSHAL SIGNED ORIGINALS ARE ON FILE AT THE DEPARTMENT OF PARKS AND RECREATION, NORTHERN SERVICE CENTER

DESIGNED: RLC  
DRAWN: RLC, EMC, TBG  
CHECKED: PHH  
DATE: 03-14-2014

REVISIONS	
NO.	DATE

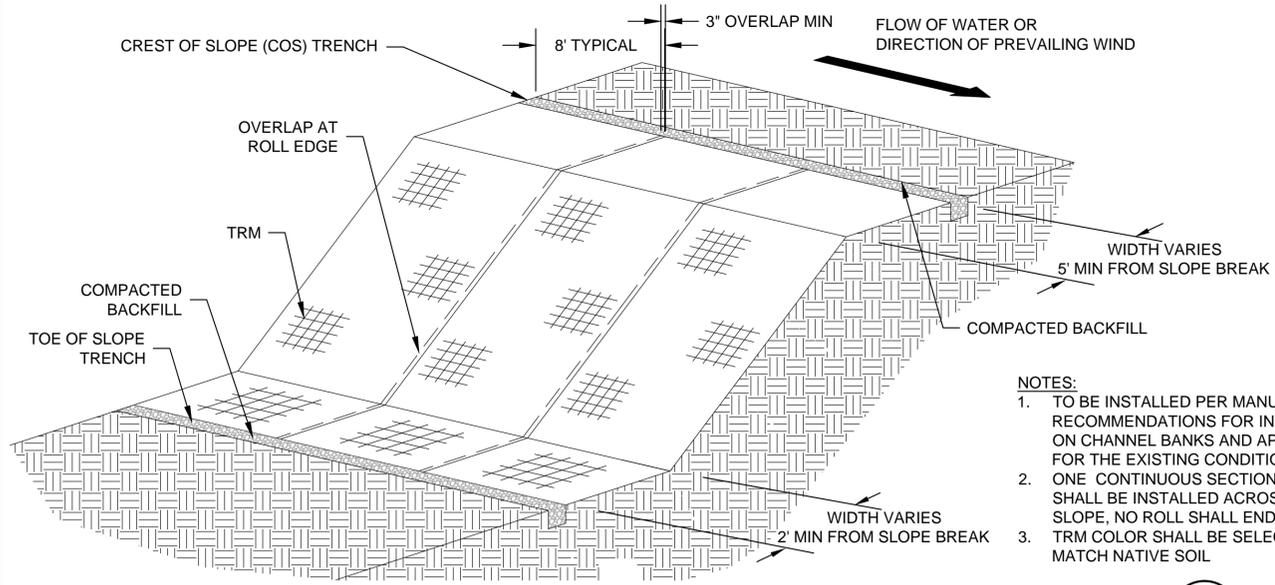
MOLESWORTH CHANNEL EROSION STABILIZATION

ENGINEERING DETAILS

DRAWING NO.  
30287.011

SHEET NO.  
C5.0

011 OF 014



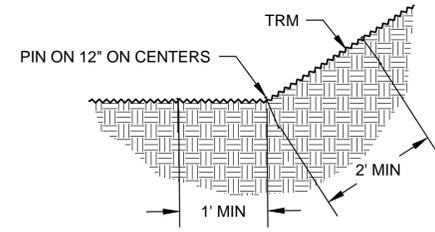
**TYPICAL TRM INSTALLATION**  
NTS

1

- NOTES:
1. TO BE INSTALLED PER MANUFACTURES RECOMMENDATIONS FOR INSTALLATION ON CHANNEL BANKS AND APPROPRIATE FOR THE EXISTING CONDITIONS.
  2. ONE CONTINUOUS SECTION OF TRM SHALL BE INSTALLED ACROSS THE SLOPE. NO ROLL SHALL END MID SLOPE.
  3. TRM COLOR SHALL BE SELECTED TO MATCH NATIVE SOIL

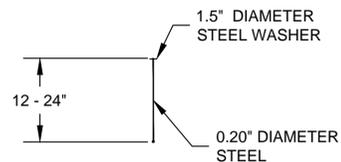
**TYPICAL BREAK IN SLOPE INTERFACE**  
SCALE: NTS

SCALE: NTS



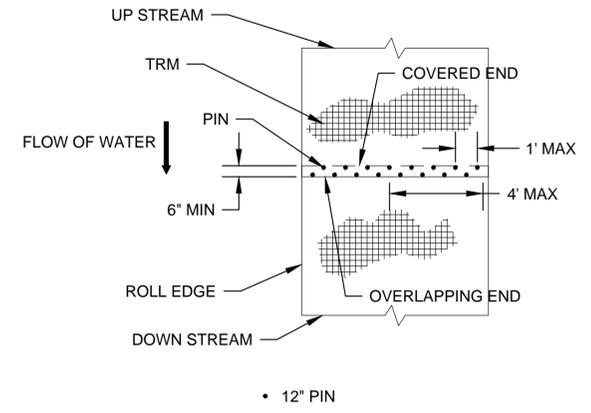
**PIN DETAIL**  
SCALE: NTS

SCALE: NTS



4

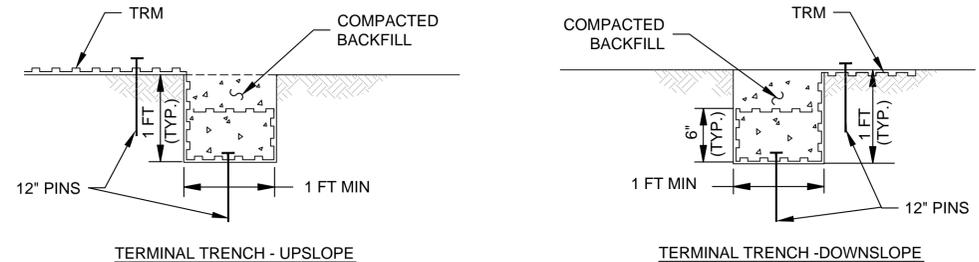
NOTE: TRM SHOULD BE SHINGLED IN THE DIRECTION OF FLOW



**TYPICAL TRM OVERLAP**  
SCALE: NTS

SCALE: NTS

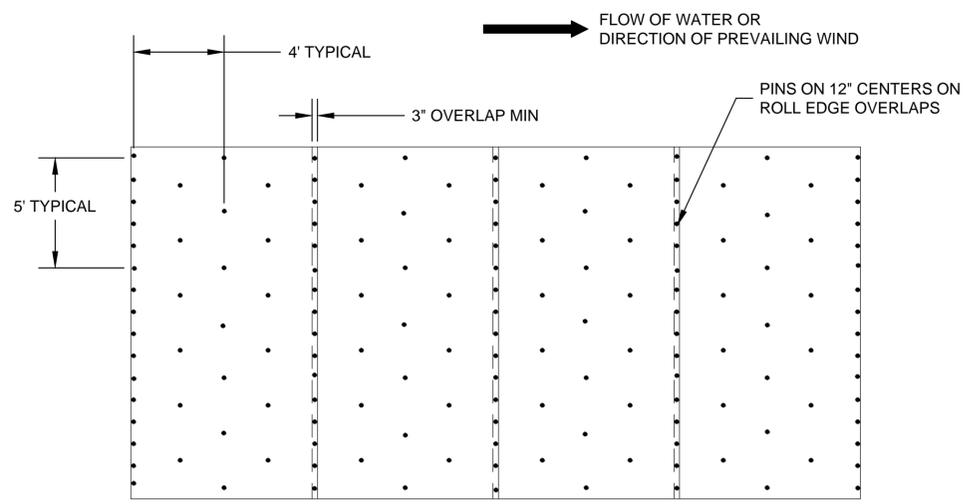
7



**TYPICAL TRM ANCHORING DETAILS**  
NTS

NTS

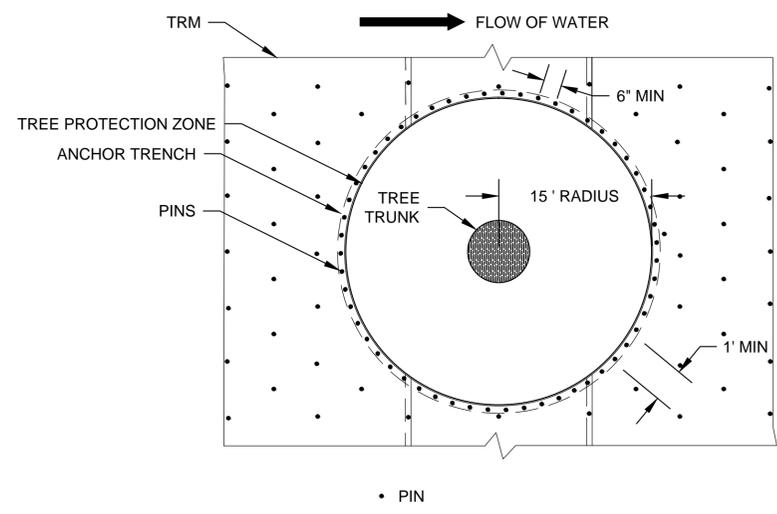
2



**TRM INSTALLATION ANCHORING DETAIL - PIN PATTERN**  
SCALE: NTS

SCALE: NTS

3



**TRM TREATMENT AROUND TREE**  
SCALE: NTS

SCALE: NTS

NOTES:

1. OVERLAP OF TRM SHALL BE 6" MINIMUM. PINNING OF OVERLAP SHALL FOLLOW STANDARD ROLL END OVERLAP DETAIL
2. TWO ROWS OF PINS ON 6" CENTERS AND ONE ROW OF PINS ON 1' CENTERS SHALL BE PLACED AROUND THE CIRCUMFERENCE OF THE TREE PROTECTION ZONE.
3. PIN PLACEMENT MAY REQUIRE VARIATION FROM DETAIL DUE TO ROOT LOCATION, TRUNK STRUCTURE OR OTHER OBSTACLES, AND EXTRA PINS MAY BE REQUIRED TO ENSURE INTIMATE CONTACT WITH GROUND SURFACE.

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CALIFORNIA STATE FIRE MARSHAL- APPROVED  
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Reviewed by \_\_\_\_\_ Date \_\_\_\_\_

DPR ACCESS COMPLIANCE REVIEW ACCESSIBILITY SECTION  
CERTIFICATION # \_\_\_\_\_

Reviewed by \_\_\_\_\_ Date \_\_\_\_\_

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DESIGNED: RLC  
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CHECKED: PHH  
DATE: 03-14-2014

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NO.	DATE

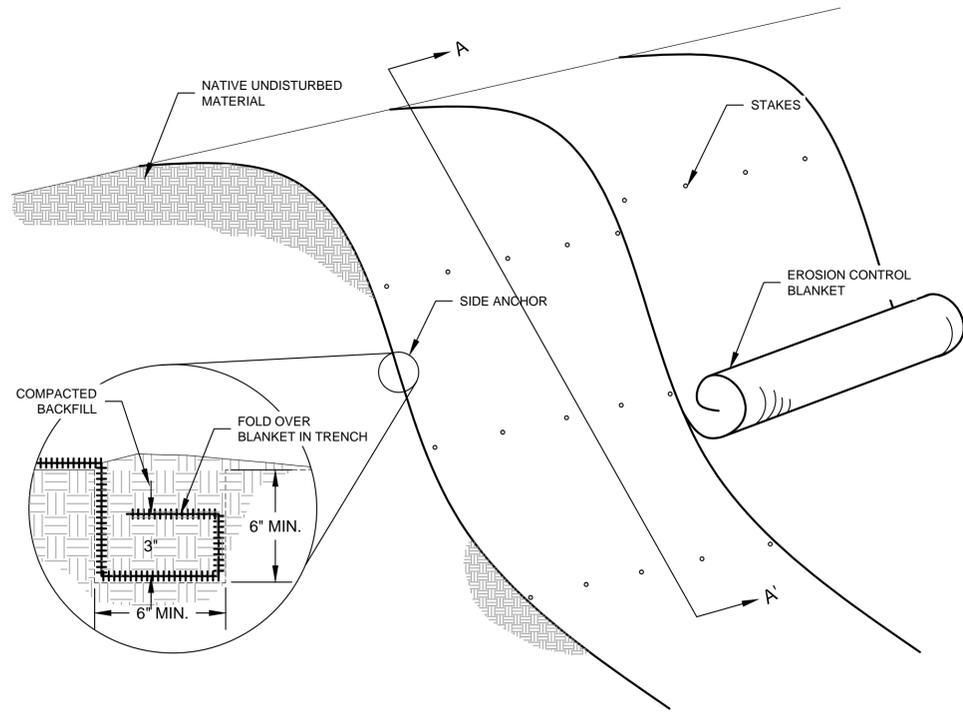
MOLESWORTH CHANNEL EROSION STABILIZATION

TURF REINFORCED MAT DETAILS

DRAWING NO.  
30287.012

SHEET NO.  
C5.1

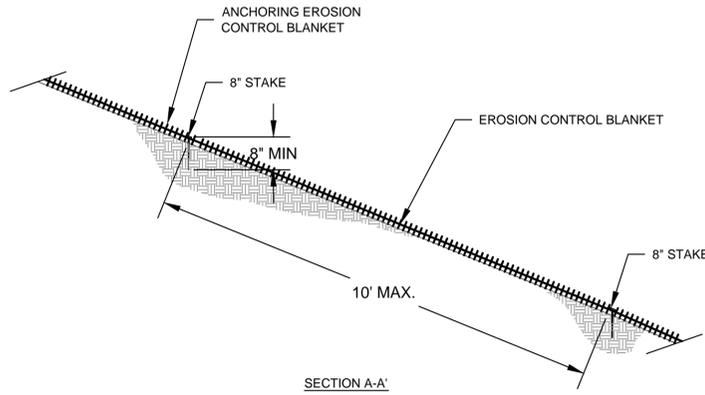
012 OF 014



**TEMPORARY EROSION CONTROL BLANKET**

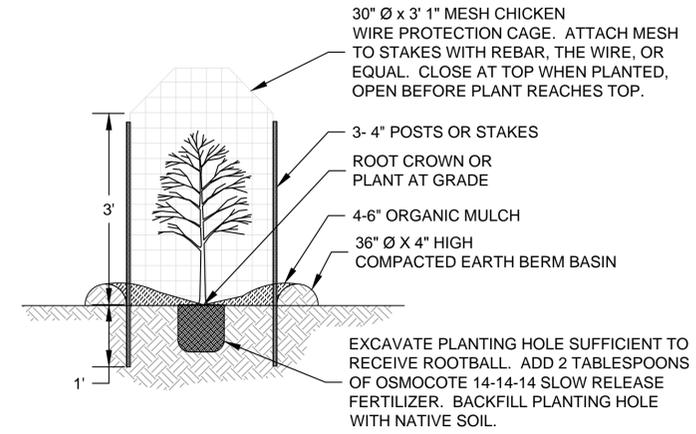
SCALE: NTS

NOTES:  
 TEMPORARY EROSION CONTROL BLANKET SHALL COVER ALL TRM MATERIAL, EXTENDING PASS THE TRM BY A MINIMUM OF 2 FT AND ANCHORED WITH A TRENCH. THE EROSION CONTROL BLANKET SHALL MEET THE SPECIFICATIONS IN SECTION XXXXX.



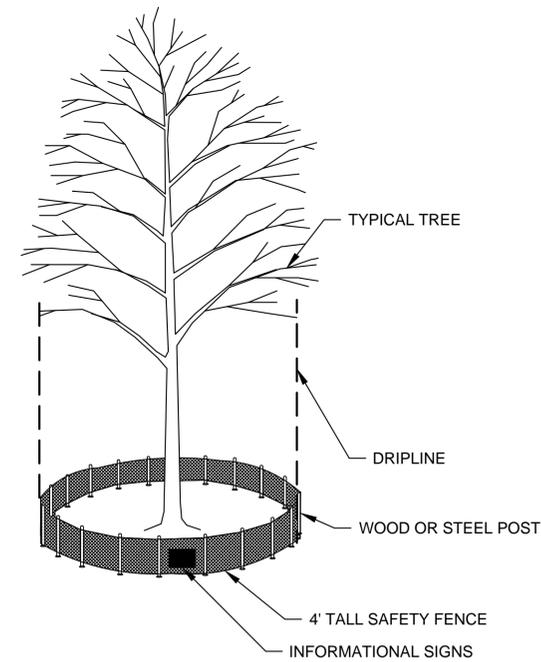
**NOTE:**

1. SLOPE PLANTING: ON SLOPES INSTALL PLANTS WITH MINIMUM DISTURBANCE TO SLOPE AND EROSION CONTROL BLANKET. INSTALL 4" HIGH COMPACTER EARTH BERM ON DOWN SLOPE SIDE OF PLANT. OTHER PLANTING SPECIFICATIONS SHALL BE THE SAME AS FOR LEVEL GROUND PLANTS.



**NEW PLANT INSTALLATION TYPICAL**

SCALE: NTS

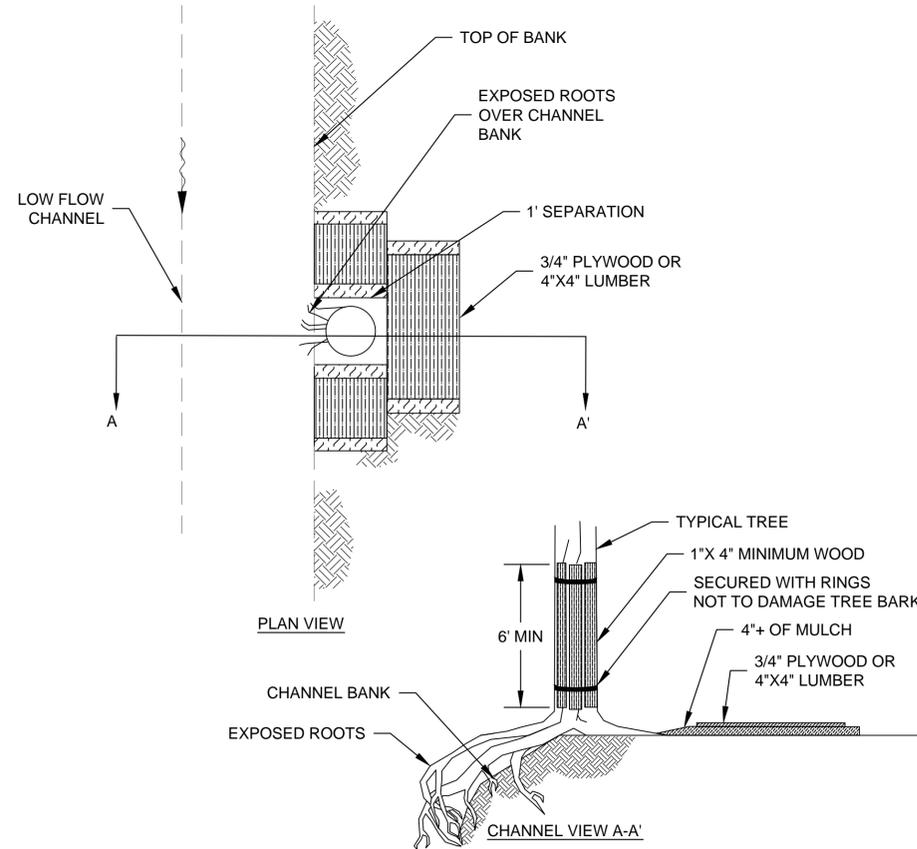


**TYPICAL TREE PROTECTION (OFF CHANNEL)**

NTS

NOTES:  
 1. SAFETY FENCE SHALL BE POLYETHYLENE OR POLYPROPYLENE, AND SHALL BE AT LEAST 4 FT IN HEIGHT AND ORANGE IN COLOR.  
 2. WOOD POSTS SHALL BE HARDWOOD WITH A WEDGE OR PENCIL TIP AT ONE END, AND SHALL BE AT LEAST 5 FT. IN LENGTH WITH A MINIMUM NOMINAL 2" X 2" CROSS SECTION.  
 3. STEEL POSTS SHALL BE AT LEAST 5 FT. IN LENGTH, AND HAVE A MINIMUM WEIGHT OF 0.85 LB/FT OF LENGTH.

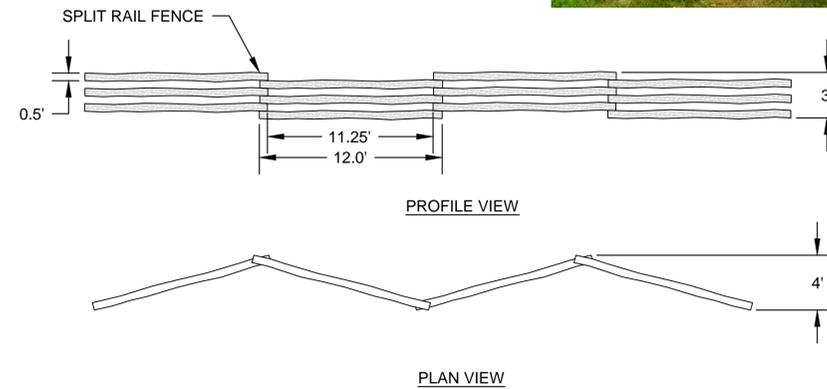
2



**TYPICAL TREE PROTECTION (IN CHANNEL)**

SCALE: NTS

3



**SPLIT RAIL FENCE**

SCALE: NTS

NOTES:  
 EXAMPLE OF SPLIT RAIL FENCE, WILL BE UPDATED ON NEXT SUBMITTAL

5



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 Sacramento, CA  
 95814-3229



CALIFORNIA STATE FIRE MARSHAL- APPROVED  
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 DPR ACCESS COMPLIANCE REVIEW ACCESSIBILITY SECTION  
 CERTIFICATION # \_\_\_\_\_  
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 CHECKED: PHH  
 DATE: 03-14-2014

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MOLESWORTH CHANNEL EROSION STABILIZATION  
**EROSION CONTROL AND TREE PROTECTION DETAILS**

DRAWING NO.  
 30287.013

SHEET NO.  
**C5.2**

013 OF 014

## **APPENDIX B – BIOLOGICAL REPORT**

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## **Denise Duffy & Associates, Inc.**

PLANNING AND ENVIRONMENTAL CONSULTING

November 24, 2014

Srikanth Rao  
Construction Supervisor II  
California Department of Parks and Recreation  
Northern Service Center  
One Capitol Mall, Suite 410  
Sacramento, California 95814

Re: Biological Resources Letter Report for the Resource Protection through Erosion Stabilization Project at Anderson Marsh State Historic Park

### **INTRODUCTION**

The emphasis of this study is to describe existing biological resources within and surrounding the project site, identify any special-status species and sensitive habitats within the project area, assess potential impacts that may occur to biological resources, and recommend appropriate avoidance and minimization measures to reduce those impacts in accordance with the California Environmental Quality Act (CEQA).

#### **Project Description**

The purpose of this project is to reduce the effects of erosion that have impacted, and continue to impact, the integrity and significance of a significant sensitive resource listed on the National Register Historic Places. Impacts to the significant sensitive resources would be minimized by stabilizing the banks of the Molesworth Channel, reducing erosion, thereby protecting sensitive resources. Project objectives include stabilizing discrete locations of the channel bank where the banks are over-steepened and erosional processes are accelerating bank sloughing (Attachments 1 and 2).

Without this project, channel banks would continue to erode and potentially expose sensitive resources, violating the California Department of Parks and Recreation's (DPR's) mission to protect "...its most valued natural, cultural and historical resources..." The DPR proposes to stabilize critical, limited sections of the channel bank that are experiencing rapid erosion and adversely impacting sensitive resources. To minimize impacts to resources during project implementation, DPR has limited the stabilization measures to active erosion areas.

The project team identified four discrete sections (Stabilization Areas 1 – 4) where channel bank stabilization, totaling approximately 57,120 square feet, would occur. The channel banks would be stabilized through treatment consisting of laying back channel bank slopes, installing Turf Reinforced Mats with soil backfill, re-vegetating with native tree and grass species, and installing temporary erosion control blankets. The following presents the proposed improvements for each of the four stabilization areas, as well as work required for the stockpile/staging area:

#### Stabilization Area – 1 (approximately 0.17 acre)

- Remove Himalayan blackberry brambles from south bank and portions of root structures in channel centerline;
- Remove sediment wedge in channel centerline and re-establish low flow channel;
- Build north channel bank in lifts (i.e., stepped cuts);

- Add 50 linear feet of rock protection at toe of rebuilt bank; and
- Install approximately 1,100 linear feet of Turf Reinforced Mat (TRM) on north bank.

Stabilization Area – 2 (approximately 0.19 acre)

- Layback top two feet of existing oversteepened bank (30 cubic yard cut);
- Install approximately 2,600 square feet of TRM on south bank from channel bottom up to re-graded slope; and
- Place cut material on top of bank at 6” maximum fill depth, graded to match existing.

Stabilization Area – 3 (approximately 0.59 acre)

- Layback top 2 – 4 feet of existing oversteepened south bank;
- Regrade vertical north bank to stable slope;
- Install approximately 5,700 square feet of TRM on north bank from channel bottom to top of bank;
- Install approximately 3,300 square feet of TRM on south bank; and
- Preserve existing pine tree on south bank.

Stabilization Area – 4 (approximately 0.36 acre)

- Regrade vertical north and south banks to stable slope;
- Re-establish low flow channel along channel centerline;
- Add 80 linear feet of rock protection at toe of rebuilt bank;
- Install approximately 1,300 square feet of TRM on north bank; and
- Install approximately 2,400 square feet of TRM on south bank.

In total, approximately 57,120 square feet (1.31 acres) of improvements are proposed within Stabilization Areas 1 – 4. In addition, stockpile and staging/soil disposal would result in approximately 6,000 square feet (0.14 acre) of temporary disturbance. The soil disposal area would measure approximately 150 feet by 40 feet, where cut material would be disposed at a depth less than six inches. Proposed total quantities of cut and fill are 343 cubic yards and 343 cubic yards, respectively; no soil would be removed off site. Construction access and entrance to the site would result in approximately 16,430 square feet and 1,450 square feet of disturbance, respectively. The total area of disturbance would be approximately 81,000 square feet (1.9 acres).

In an effort to limit the potential damage caused by pedestrians crossing the newly installed stabilization measures, the project proposes to install a low, split rail fence planted with native California blackberry along the top of the bank on both sides of the channel. Once the blackberry is established, the fences would either be removed or remain in place.

## **METHODS**

### **Personnel and Survey Dates**

A reconnaissance-level survey was conducted on April 24, 2014 to assess the environmental conditions of the site and its surroundings, to evaluate the general habitat features and environmental constraints at the site and immediate vicinity, and to provide a basis for recommendations to minimize and avoid impacts. The survey was conducted by Denise Duffy & Associates, Inc. (DD&A) Senior Environmental Scientist, Josh Harwayne, and Assistant Environmental Scientist, Jami Davis. The project site was surveyed for botanical resources following the applicable guidelines outlined in: *Guidelines for Conducting and Reporting Botanical Inventories for Federally listed, Proposed and Candidate Plants* (Service 2000), *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant*

*Populations and Natural Communities* (CDFW 2009), and California Native Plant Society (CNPS) Botanical Survey Guidelines (CNPS 2001).

### **Sensitive Habitats and Special-Status Species**

The project site was surveyed for sensitive habitats. Sensitive habitats include riparian corridors, wetlands and Waters of the U.S., habitats for legally protected species, areas of high biological diversity, areas supporting rare or special-status wildlife habitat, and unusual or regionally restricted habitat types. Habitat types considered sensitive include those listed on the California Natural Diversity Database (CNDDDB) working list of high priority and rare natural communities (i.e., those habitats that are Rare or Endangered within the borders of California) (CDFW 2010), those that are occupied by species listed under the federal Endangered Species Act (ESA) or are critical habitat in accordance with ESA, and those that are defined as Environmentally Sensitive Habitat Areas (ESHA) under the Coastal Act or “essential fish habitat” under the Magnuson-Stevens Fishery Conservation and Management Act. Sensitive habitats are regulated under federal regulations (such as the Clean Water Act, the Rivers and Harbors Act, and Executive Order 11990 – Protection of Wetlands) and state regulations (such as CEQA and the California Department of Fish and Wildlife’s [CDFW’s] Streambed Alteration Program).

The project site was also evaluated for the presence or potential presence of special-status plant and wildlife species. Special-status species are those plants and animals that have been formally listed or proposed for listing as Endangered or Threatened, or are Candidates for such listing under ESA or the California Endangered Species Act (CESA). Listed species are afforded legal protection under the ESA and CESA. Species that meet the definition of Rare or Endangered under CEQA Section 15380 are also considered special-status species. Species that meet this definition and are typically provided management consideration through the CEQA and National Environmental Protection Act (NEPA) processes, although they are not legally protected under the ESA or CESA include: CDFW species of special concern and fully protected species; species listed on the CNDDDB with no formal status designation but thought by experts to be rare or in serious decline; plants listed as rare under the California Native Plant Protection Act (CNPPA) or on the CNPS List 1B, 2, 3, and 4<sup>1</sup>; raptors and other migratory birds protected under the federal Migratory Bird Treaty Act (MBTA) of 1918 and Fish and Game Code; and marine mammals protected under the Marine Mammal Act of 1972.

### **Data Collection and Research**

A focused review of literature and data sources was conducted in order to determine which special-status species are known to or have a potential to occur within the project vicinity (Attachment 3). Reports from the CNDDDB for the Clearlake Highlands, Clearlake Oaks, Lower Lake, Benmore Canyon, Middletown, Whispering Pines, Geysers, Kelseyville, and Lucerne quadrangles were reviewed for special-status species occurrences prior to conducting the site assessment. Current agency status information was obtained from U.S. Fish and Wildlife Service (Service) for species listed as Threatened, Endangered, Proposed, and Candidate, under the federal ESA. In addition, current agency status information was obtained for species listed as Threatened or Endangered by the State of California under the CESA, or listed as species of special concern by the CDFW. This information was used to compile a list of special-status species known or with the potential to occur in the vicinity of the project site (Attachment 3). This list also presents the legal status of the species, their habitat requirements, and a

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<sup>1</sup> California Rare Plant Rank: Rank 1B = Plants rare, threatened, or endangered in California and elsewhere; Rank 2 = Plants rare, threatened, or endangered in California, but more common elsewhere; Rank 3: = Plants about which we need more information, a review list; Rank 4 = Plants of limited distribution, a watch list. The CNPS Threat Rank is an extension added onto the California Rare Plant Rank and designates the level of endangerment by a 1 to 3 ranking with 1 being the most endangered and 3 being the least endangered.

brief statement of their likelihood to occur. The likelihood of occurrence was determined by evaluating the geographic ranges and habitat requirements of each species in relation to on-site conditions.

## RESULTS

### Habitat Types

There are three habitat types within the project boundaries; non-native grassland, Waters of the U.S. (waters), and riparian (Attachment 4). The majority of the project site consists of relatively flat, non-native grassland bisected east to west by a constructed drainage channel approximately 30 feet wide and 10 feet deep. The bed and bank of the Molesworth Channel is relative consistent throughout the evaluation area, having a trapezoidal shape with the bed relatively flat and the bank sloped at approximately 2:1. The top of bank meets a flat field on both sides of the channel. The vegetation found on the bank is fairly consistent with that found in the surrounding field and consists of non-native grassland. The bed of the channel constitutes waters and is nearly unvegetated.<sup>2</sup> The channel transitions into riparian habitat at the westernmost portion of the project, adjacent to the lake.

The non-native grassland within the evaluation area appears highly disturbed as the result of land use history, such as the excavation and maintenance of the channel. The non-native grassland on the channel slope and adjacent field is dominated by annual, invasive grass and forb species such as soft chess (*Bromus hordeaceus*), wild oat (*Avena fatua*), and yellow star thistle (*Centaurea solstitialis*). The bed of the channel is unvegetated except for sparsely occurring plants including individuals of perennial rye grass (*Lolium perenne*), spreading rush (*Juncus patens*), Carex (*Carex sp.*), and curly dock (*Rumex crispus*). The riparian portion of the project site is dominated by an over story of Fremont's cottonwood (*Populus fremontii ssp fremontii*) and valley oak (*Quercus lobata*), and an understory of poison oak (*Toxicodendron diversilobum*), Himalayan blackberry (*Rubus armeniacus*), and English ivy (*Hedera helix*).

Within the bed of the channel and along some of the sloped channel banks, a number of tree species are present. Tree species include box elder (*Acer negrundo*), gray pine (*Pinus sabiniana*), Fremont's cottonwood, willow (*Salix sp.*), and valley oak.

### Special-Status Plant Species

No special-status plant species were identified during the site assessment, and none are expected to occur due to lack of appropriate habitat (Attachment 5).

### Sensitive Habitats

#### Wetlands and Waters of the U.S.

The U.S. Army Corps of Engineers (USACE) is the primary federal agency responsible for regulating waters of the U.S. Waters of the U.S. are regulated under Sections 404 of the Clean Water Act and Sections 9 and 10 of the Rivers and Harbors Act. A Wetland and Waters of the U.S. Delineation Report was prepared for the project (DD&A 2014) (Attachment 5). No wetlands are present within or directly adjacent to the project. Approximately 0.25 acre of potential Waters of the US, consisting of the Molesworth Channel bed was documented within the project site.

#### Riparian Habitat

The CDFW and the Regional Water Quality Control Board are the primary state agencies responsible for regulating riparian habitat. Riparian habitat is regulated under Sections 1600 of the Fish and Game

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<sup>2</sup> Vegetative cover is less than 5% along the length of the channel within the evaluation area.

Code. Riparian habitat consists of the vegetation associated with a hydrogeomorphic feature which is distinct from the adjacent upland vegetation. There is a significant amount of riparian habitat found within the mosaic of habitat types along the lake fringe and associated marshes. The Molesworth Channel was excavated in upland and for the purpose of conveying water to the lake. As such, the portion of the channel which intersects the lake contains riparian habitat. Approximately 0.12 acre of riparian habitat was documented within the project boundary.

### **Special-Status Wildlife Species**

Special-status wildlife species that are known or have the potential to occur based on a USGS quadrangle search within the project vicinity are listed in Attachment 3. From this list, species that are known or have a moderate or high potential to occur are discussed further. No special-status wildlife species were observed during the site visit. However, there is a historic occurrence of the Western yellow-billed cuckoo within the riparian habitat associated with the westernmost portion of the project site from 1973. There are two special-status fish species known to occur adjacent to the project site in Clear Lake; Sacramento perch and Clear Lake hitch. In addition, there is potential nesting habitat for raptors and other protected migratory bird species within and adjacent to the project site and potential roosting habitat for a number of bat species adjacent to the project site; silver-haired bat, western red bat, long-eared myotis bat, and the fringed myotis bat. A narrative of each of these species and a description of the project's potential to impact them is provided below. No other special-status wildlife species are likely to be present within the project site due to a lack of appropriate habitat.

#### Western Yellow-Billed Cuckoo

This species inhabits extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, slow-moving watercourses, backwaters, or seeps. Willow is almost always a dominant component of the vegetation.

#### *Species Presence within the Project Site:*

Suitable habitat is present for this species in the riparian habitat within and adjacent to the westernmost portion of the project site. There is a CNDDDB occurrence that includes the project site; however, the CNDDDB only notes one sighting from 1973.

#### Sacramento Perch

Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. This species prefers warm water conditions. Aquatic vegetation is essential for the young. This species tolerates a wide range of physio-chemical water conditions.

#### *Species Presence within the Project Site:*

No suitable habitat is present within the project site; however, the nearest CNDDDB occurrence is approximately 0.02 mile from project site, within Clear Lake, which is intermittently hydrologically connected with the Molesworth Channel.

#### Clear Lake Hitch

This species is found only in Clear Lake, and associated ponds. It spawns in streams flowing into Clear Lake. Adults of this species are found in the limnetic zone. Juveniles of this species are found in the nearshore, shallow-water habitat, hiding in the vegetation.

*Species Presence within the Project Site:*

No suitable habitat is present within the project site; however, the nearest CNDDDB occurrence is approximately 0.02 mile from project site, within Clear Lake, which is intermittently hydrologically connected with the Molesworth Channel.

Silver-Haired Bat

This species is most closely associated with coniferous or mixed coniferous and deciduous forest types, especially in areas of old growth. They form maternity colonies almost exclusively in tree cavities or small hollows. Like many forest-roosting bats, silver-haired bats will switch roosts throughout the maternity season. Typical hibernation roosts for this species include small tree hollows, beneath exfoliating bark, in wood piles, and in cliff faces. Occasionally silver-haired bats will hibernate in cave entrances, especially in northern regions of their range.

*Species Presence within the Project Vicinity:*

Potential maternity roost habitat is present for this species adjacent to the project site. The nearest CNDDDB occurrence is approximately 15.6 miles away from the project site.

Western Red Bat

Roosting habitat for this species includes trees and sometimes shrubs in forests and woodlands from sea level up through mixed conifer forests. Roost sites are often in edge habitats adjacent to streams, fields, or urban areas. This species typically feeds over a wide variety of habitats, including grasslands, shrub lands, open woodlands and forests, and croplands.

*Species Presence within the Project Vicinity:*

Potential roosting and foraging habitat is present for this species adjacent to the project site. The nearest CNDDDB occurrence is approximately 8.2 miles away from the project site.

Long-Eared Myotis Bat

This species is found in brush, woodland, and forest habitats. Nursery colonies can be found in buildings, crevices, spaces under bark, and snags; caves are used primarily as night roosts.

*Species Presence within the Project Vicinity:*

Suitable maternity roosting habitat exists adjacent to the project site. The nearest CNDDDB occurrence is approximately 8.2 miles away from the project site.

Fringed Myotis Bat

This species is most often associated with redwood forests in coastal areas and utilizes redwood hollows. This species can roost in caves, mines, and buildings. Potential maternity roost habitat occurs in oak tree cavities (both mature and medium aged coast live oak).

*Species Presence within the Project Vicinity:*

Potential maternity roost habitat is exists adjacent to the project site. The nearest CNDDDB occurrence is approximately 8.2 miles away from the project site.

Raptors and Other Protected Migratory Bird Species

While the life histories of these species vary, overlapping nesting and foraging similarities (approximately February through August) allow for their concurrent discussion. Most species are breeding residents throughout most of the wooded portions of the state. Stands of live oak, riparian deciduous or other forest habitats are used most frequently for nesting. Breeding occurs February through August, with peak activity May through July.

*Species Presence within the Project Vicinity:*

Various raptor and migratory bird species may forage over the project site. Additionally, trees within and adjacent to the project site may provide appropriate nesting habitat for these avian species.

## **PROJECT IMPACTS**

While the project will have temporary impacts to biological resources as described below, the long-term impacts from the project will be positive. The project will improve habitat as the result of replanting disturbed areas with native vegetation and trees, replacing the non-native, invasive vegetation that currently occupies the site. In addition, the project will enhance water quality by reducing on-site erosion and off-site sedimentation to the adjacent Clear Lake.

### **Botanical Impacts**

No impacts to special-status plant species will result from the proposed project.

### **Sensitive Habitat Impacts**

A small section of non-native Himalayan blackberry brambles will be permanently removed from the riparian habitat and 50 linear feet of rock protection will be placed in that location. In addition, 80 linear feet of rock protection will be placed in Waters of the U.S. Temporary construction-related impacts to waters and riparian habitats could include soil disturbance from channel layback and the removal of non-native vegetation. These impacts are considered less-than-significant. To prevent unintentional impacts, the following BMPs and DPR Standard and Specific Project Requirements identified below will be implemented.

#### Waters of the U.S.

1. Prior to the start of on-site construction activities, the Contractor will inspect all equipment for leaks and regularly inspect thereafter until equipment is removed from the project site. All contaminated water, sludge, spill residue, or other hazardous compounds will be contained and disposed of outside the boundaries of the site, at a lawfully permitted or authorized destination. All vehicle repair (except emergencies) will occur outside Park boundaries.
2. Prior to the start of construction involving ground-disturbing activities, the Project Engineer will prepare and submit a Storm Water Pollution Prevention Plan (SWPPP) for DPR approval that identifies temporary Best Management Practices (BMPs) (e.g., tarping of any stockpiled materials or soil; use of wildlife-friendly silt fences, straw bale barriers, fiber rolls, etc.) and permanent (e.g., structural containment, preserving or planting of vegetation) BMPs for use in all construction areas to reduce or eliminate the discharge of soil, surface water runoff, and pollutants during all excavation, grading, trenching, repaving, or other ground-disturbing activities. The SWPPP will include a Spill Prevention and Response Plan (SPRP) to provide protection to on-site workers, the public, and the environment from accidental leaks or spills of vehicle fluids or other potential contaminants.
3. All construction activities will be suspended during heavy precipitation events (i.e., at least 1/2-inch of precipitation in a 24-hour period) or when heavy precipitation events are forecast.

#### Riparian Habitat

Measures #1-3 above will also reduce impacts to riparian habitat.

4. Revegetation of the slopes and planting of upland trees as detailed in Sheets C3.0 and C5.2 of the project 60% plans will be implemented as part of the project. The trees will be planted from local seeds collected on-site and planted per DPR policy. All success criteria will meet DPR Department Operations Manual (DOM) Chapter 0300.

### **Wildlife Impacts**

Construction of the project has the potential to result in temporary impacts to several wildlife species as a result of vegetation removal, noise, vibration, and dust associated with construction actions. Construction activities are proposed during the dry season; however, if unseasonable storms occur during this period, temporary water quality impacts to Clear Lake could result from an increase in erosion and sedimentation or materials spill. Overall, the project objectives include reducing erosion and, thereby, improving water quality.

The short-term impacts identified above are considered less than significant; however, per DPR Standard Project Requirements, the following measures will be implemented to further reduce potential impacts.

#### Western Yellow-Billed Cuckoo, Raptors, and Other Protected Migratory Bird Species

Measures #1-4 above also reduce impacts for western yellow-billed cuckoo, raptors, and other migratory bird species.

5. Contractor shall schedule construction activities between February 1 and August 31 (nesting season) only under the following conditions:
  - If nesting raptors are observed during DPR pre-construction breeding season surveys, the Contractor shall not work within the 200-foot buffer zone of the active nest until after the young have fledged and there is no evidence of a second attempt at nesting, as determined by a DPR-approved biologist; or
  - If active migratory bird nests are located during DPR surveys, the Contractor shall not work within a minimum 50-foot radius buffer zone of the nest tree until the nest is vacated, juveniles have fledged, and there is no evidence of a second nesting attempt as determined by a DPR biologist.

#### Fish

Measures #1-4 above will also reduce impacts to fish.

#### Bats

Measures #1-4 above will also reduce impacts to bats.

6. To avoid and reduce impacts to special-status bat species, the contractor will schedule noise-generating work between May 1-August 31 (maternity season) only under the following conditions: Based on the results of these initial bat surveys, one or more of the following will occur:
  - If it is determined that bats are not present at the site, no action is required.
  - If it is determined that bats are utilizing the site and may be impacted by the proposed project, the biologist will determine if disturbance will jeopardize a maternity roost or another type of roost (i.e., foraging, day, or night).

- If a single bat and/or only adult bats are roosting, exclusion techniques will be determined by the biologist and depend on the roost type; the biologist will prepare a management plan for DPR approval prior to the initiation of construction.
- If an active maternity roost is detected, work in the vicinity of the roost (buffer to be determined by biologist) will be redirected to areas outside the buffer zone or postponed until the biologist monitoring the roost(s) determines that the young have fledged and are no longer dependent on the roost. The monitor will ensure that all bats have left the area of disturbance prior to initiation of disruptive construction activities.

Please do not hesitate to contact Josh Harwayne if you have any questions at (831) 373-4341.

Sincerely,

A handwritten signature in black ink that reads "Josh Harwayne". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Josh Harwayne  
Senior Environmental Scientist/Project Manager  
DENISE DUFFY & ASSOCIATES, INC.

**Enclosures:**

*Attachment 1: Location Map*

*Attachment 2: Project Site Plan*

*Attachment 3: Special-Status Species Table*

*Attachment 4: Habitat Map*

*Attachment 5: Wetland and Waters of the U.S. Delineation Report*

## Cited References

- [DD&A] Denise Duffy & Associates, Inc. 2014. Molesworth Channel Erosion Stabilization Project Anderson Marsh State Historic Park, Delineation of Potential Jurisdictional Wetlands and Waters Under Section 404 of the Clean Water Act. [unpublished].
- [CDFW] California Department of Fish and Wildlife. 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. Available online at: [http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols\\_for\\_Surveying\\_and\\_Evaluating\\_Impacts.pdf](http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf)
- [CDFW] California Department of Fish and Wildlife. 2010. List of California terrestrial natural communities recognized by the California Natural Diversity Database. Available online at: <http://www.dfg.ca.gov/biogeodata/vegcamp/pdfs/natcomlist.pdf>
- [CNPS] California Native Plant Society. 2001. Botanical Survey Guidelines. Available online at: [http://www.cnps.org/cnps/rareplants/pdf/cnps\\_survey\\_guidelines.pdf](http://www.cnps.org/cnps/rareplants/pdf/cnps_survey_guidelines.pdf)
- [Service] U.S. Fish and Wildlife Service. 2000. Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants. Available online at: [http://www.fws.gov/ventura/speciesinfo/protocols\\_guidelines/docs/botanicalinventories.pdf](http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/docs/botanicalinventories.pdf)

## **Attachment 1**

### **Location Map**

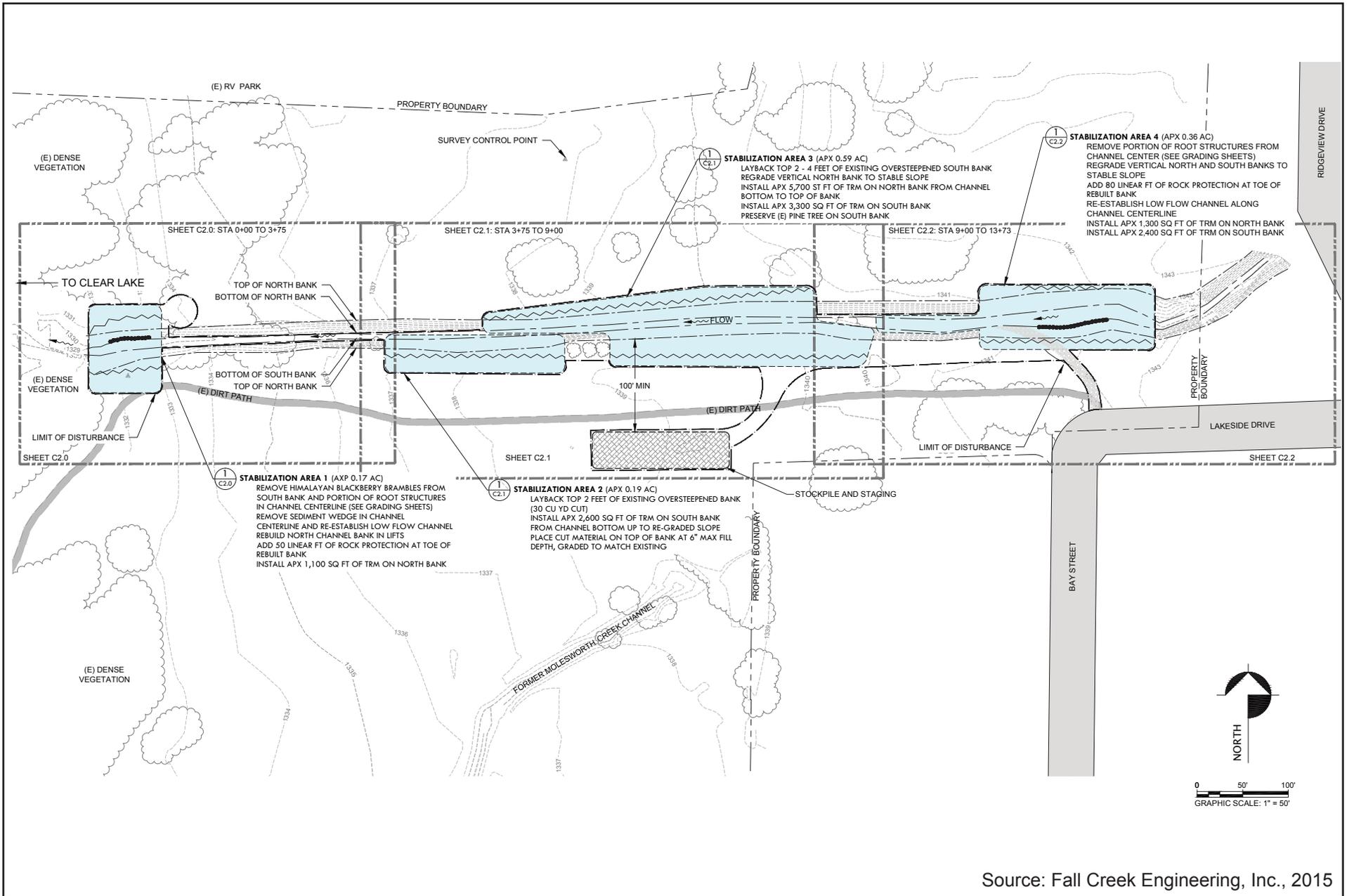


Location Map

June 2014

Anderson Marsh State Historic Park  
 Molesworth Channel Erosion Stabilization

**Attachment 2**  
**Project Site Plan**



Source: Fall Creek Engineering, Inc., 2015



# Overall Site Improvements Plan

February 2015

Resource Protection through Erosion Stabilization Project  
 Molesworth Channel Anderson Marsh State Historic Park

**Attachment 3**  
**Special-Status Species**

## Special-Status Species Database

Species	Status (Service/ Department/CNPS)	General Habitat	Potential Occurrence within Project Vicinity
<b>MAMMALS</b>			
<i>Antrozous pallidus</i> Pallid bat	-- / CSC / --	Occurs in a wide variety of habitats including grasslands, shrublands, arid desert areas, oak savanna, coastal forested areas, and coniferous forests of the mountain regions of California. Most common in open, dry habitats with rocky areas for roosting. Day roosts include caves, crevices, mines, and occasionally hollow trees and buildings. Seems to prefer rocky outcrops, cliffs, and crevices with access to open habitats for foraging. Similar structures are used for night roosting and will also use more open sites such as eaves, awnings, and open areas under bridges for feeding roosts.	<b>Low:</b> Potential foraging habitat present within or adjacent to project site. No breeding or roosting habitat present in or around project area. The nearest CNDDDB occurrence is approximately 5.5 miles away from project site.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	-- / CSC & SC / --	Found primarily in rural settings from inland deserts to coastal redwoods, oak woodland of the inner Coast Ranges and Sierra foothills, and low to mid-elevation mixed coniferous-deciduous forests. Typically roost during the day in limestone caves, lava tubes, and mines, but can roost in buildings that offer suitable conditions. Night roosts are in more open settings and include bridges, rock crevices, and trees.	<b>Low:</b> Potential night roosting and foraging habitat within or adjacent to the project site. No suitable breeding habitat present in or around project area. The nearest CNDDDB occurrence is approximately 8.2 miles away from the project site
<i>Lasiorycteris noctivagans</i> Silver-haired bat	-- / CNDDDB / --	Most closely associated with coniferous or mixed coniferous and deciduous forest types, especially in areas of Old Growth. They form maternity colonies almost exclusively in tree cavities or small hollows. And like many forest-roosting bats, silver-haired bats will switch roosts throughout the maternity season. Typical hibernation roosts for this species include small tree hollows, beneath exfoliating bark, in wood piles, and in cliff faces. Occasionally silver-haired bats will hibernate in cave entrances, especially in northern regions of their range.	<b>Moderate:</b> Potential maternity roost habitat adjacent to the project site. The nearest CNDDDB occurrence is approximately 15.6 miles away from the project site.
<i>Lasiurus blossevilii</i> Western red bat	-- / CSC / --	Roosting habitat includes trees and sometimes shrubs in forests and woodlands from sea level up through mixed conifer forests. Roost sites are often in edge habitats adjacent to streams, fields, or urban areas. Feeds over a wide variety of habitats, including grasslands, shrublands, open woodlands and forests, and croplands.	<b>Moderate:</b> Potential roosting and foraging habitat within or adjacent to the project site. The nearest CNDDDB occurrence is approximately 8.2 miles away from the project site

Species	Status (Service/ Department/CNPS)	General Habitat	Potential Occurrence within Project Vicinity
<i>Lasiurus cinereus</i> Hoary bat	-- / CNDDDB / --	Prefers open habitats or habitat mosaics with access to trees for cover and open areas or edge for feeding. Generally roost in dense foliage of trees; does not use buildings for roosting. Winters in California and Mexico and often migrates towards summer quarters in the north and east during the spring. Young are born and reared in summer grounds, which is unlikely to occur in California.	<b>Low:</b> Potential roosting and foraging habitat within or adjacent to the project site. No suitable breeding habitat present in or around project area. The nearest CNDDDB occurrence is approximately 8.2 miles away from the project site
<i>Myotis evotis</i> Long-eared myotis bat	-- / CNDDDB / --	Found in brush, woodland, and forest habitats. Nursery colonies in buildings, crevices, spaces under bark, and snags; caves are used primarily as night roosts.	<b>Moderate:</b> Potential foraging habitat within or adjacent to the project site. Suitable maternity roost habitat adjacent to the project site. The nearest CNDDDB occurrence is approximately 8.2 miles away from the project site.
<i>Myotis thysanodes</i> Fringed myotis bat	-- / CNDDDB / --	Associated with redwood forests in coastal and utilizes redwood hollows. Roosts in caves, mines, and buildings. Potential maternity roost habitat occurs in oak tree cavities (both mature and medium aged coast live oak).	<b>Moderate:</b> Potential maternity roost habitat adjacent to the project site. The nearest CNDDDB occurrence is approximately 8.2 miles away from the project site.
<b>BIRDS</b>			
<i>Aquila chrysaetos</i> Golden eagle (nesting & wintering)	-- / CFP / --	Use rolling foot-hills, mountain terrain, wide arid plateaus deeply cut by streams and canyons, open mountain slopes, cliffs, and rocky outcrops. Nest in secluded cliffs with overhanging ledges as well as large trees.	<b>Unlikely:</b> No suitable habitat is present within or adjacent to the project site.
<i>Coccyzus americanus occidentalis</i> Western yellow-billed cuckoo	FC / SE / --	Inhabits extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, slow-moving watercourses, backwaters, or seeps. Willow almost always a dominant component of the vegetation.	<b>Moderate:</b> Suitable habitat is present in the riparian habitat within and adjacent to the project site. There is a CNDDDB occurrence that includes the project site; however, the CNDDDB only notes one sighting from 1973.
<i>Haliaeetus leucocephalus</i> Bald eagle (nesting & wintering)	-- / SE & CFP / --	Perches high in large, stoutly limbed trees, on snags or broken-topped trees, or on rocks near waters. Roosts communally in winter in dense, sheltered, remote conifer stands. Nests in large, old-growth, or dominant live tree with open branchwork, especially ponderosa pine. Often chooses largest tree in a stand on which to build stick platform nest. Require large bodies of water, or free flowing rivers with abundant fish.	<b>Unlikely:</b> No suitable habitat is present within or adjacent to the project site.

Species	Status (Service/ Department/CNPS)	General Habitat	Potential Occurrence within Project Vicinity
<i>Pandion haliaetus</i> Osprey (nesting)	-- / CNDDDB / --	Associated strictly with large, fish-bearing waters, primarily in ponderosa pine through mixed conifer habitats. Uses large trees, snags, and dead-topped trees in open forest habitats for cover and nesting. Breeds in northern California from the Cascade Ranges, south to Lake Tahoe and along the coast south to Marin County and is an uncommon winter visitor along the coast of Southern California.	<b>Low:</b> Suitable nesting habitat is present adjacent to the project site. The nearest CNDDDB occurrence is approximately 6.6 miles away from the project site. Several additional occurrences are known around Clear Lake.
<i>Progne subis</i> Purple martin (nesting)	-- / CSC / --	Valley foothill and montane hardwood, valley foothill conifer, riparian habitats, and coniferous habitats, including closed-cone pine-cypress, ponderosa pine, Douglas-fir, and redwood. Hawks insects on long, gliding flights above ground. Occasionally ground forages. Typically nest in woodpecker cavity, or other natural/man-made cavities including bridges.	<b>Low:</b> Suitable habitat is present in the riparian habitat within and adjacent to the project site. The nearest CNDDDB occurrence is approximately 11.1 miles away from the project site.
<b>REPTILES AND AMPHIBIANS</b>			
<i>Emys marmorata</i> Western pond turtle  (includes <i>E. m. pallida</i> and <i>E. m. marmorata</i> as recognized by the Department)	-- / CSC / --	Associated with permanent or nearly permanent water in a wide variety of habitats including streams, lakes, ponds, irrigation ditches, etc. Require basking sites such as partially submerged logs, rocks, mats of vegetation, or open banks.	<b>Low:</b> Only low quality habitat present within the project site. The nearest CNDDDB occurrence is approximately 6.7 miles away from the project site.
<i>Rana boylei</i> Foothill yellow-legged frog	-- / CSC / --	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats, including hardwood, pine, and riparian forests, scrub, chaparral, and wet meadows. Rarely encountered far from permanent water.	<b>Unlikely:</b> No suitable habitat is present within or adjacent to the project site.
<b>FISH</b>			
<i>Archoplites interruptus</i> Sacramento perch	-- / CSC / --	Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. Prefers warm water. Aquatic vegetation is essential for young. Tolerates wide range of physio-chemical water conditions.	<b>High:</b> No suitable habitat present within the project site; however, the nearest CNDDDB occurrence is approximately 0.02 mile from project site, within Clear Lake, which is intermittently hydrologically connected with the Molesworth channel.

Species	Status (Service/ Department/CNPS)	General Habitat	Potential Occurrence within Project Vicinity
<i>Lavinia exilicauda chi</i> Clear Lake hitch	-- / ST / --	Found only in Clear Lake, Lake Co, and associated ponds. Spawns in streams flowing into Clear Lake. Adults found in the limnetic zone. Juveniles found in the nearshore shallow-water habitat hiding in the vegetation.	<b>High:</b> No suitable habitat present within the project site; however, the nearest CNDDDB occurrence is approximately 0.02 mile from project site, within Clear Lake, which is intermittently hydrologically connected with the Molesworth channel.
<i>Oncorhynchus mykiss irideus</i> Steelhead (Central California Coast ESU)	FT / -- / --	Coastal perennial and near perennial streams, with suitable spawning and rearing habitat and no major barriers.	<b>Unlikely:</b> No suitable habitat is present within or adjacent to the project site.
<b>INVERTEBRATES</b>			
<i>Calasellus californicus</i> <i>An isopod</i>	-- / CNDDDB / --	Found in freshwater habitats; the known collections are from a freshwater well and two springs. Has been collection from one locality each in Lake, Napa, and Santa Clara Counties. No life history information has been posted for this species.	<b>Low:</b> Potentially suitable habitat present within the project site. There have been no CNDDDB occurrences within the immediate vicinity; the nearest CNDDDB occurrence is approximately 12.9 miles away from the project site.
<i>Dubiraphia brunnescens</i> Brownish dubiraphian riffle beetle	-- / CNDDDB / --	Known only from the northeast shore of Clear Lake, Lake County. Inhabits exposed, wave-washed willow roots.	<b>Low:</b> Potentially suitable habitat is present where the channel meets the lake, outside of the project site. The nearest CNDDDB occurrence is approximately 0.02 mile away from project site at Clear Lake, which is intermittently hydrologically connected with the Molesworth channel.
<i>Hedychridium milleri</i> Borax Lake cuckoo wasp	-- / CNDDDB / --	External parasite of wasp and bee larva. Endemic to Central California. Only collection is Borax Lake.	<b>Unlikely:</b> The project site is outside of the highly endemic range for this species.
<i>Hydrochara rickseckeri</i> Ricksecker's water scavenger beetle	-- / CNDDDB / --	Relatively calm shallow water in the San Francisco Bay area.	<b>Unlikely:</b> No suitable habitat is present within or adjacent to the project site. The project site is outside of the highly endemic range for this species.

Species	Status (Service/ Department/CNPS)	General Habitat	Potential Occurrence within Project Vicinity
<i>Pyrgulopsis ventricosa</i> Clear Lake pyrg	-- / CNDDDB / --	This species inhabits springs and small spring-fed streams, where it is found on vegetation. This species is restricted to the Seigler Canyon Creek drainage in the south end of the Clear Lake basin, in California. Its extent of occurrence is estimated as less than 20 km <sup>2</sup> and its area of occupancy is likely to be less than 10 km <sup>2</sup> .	<b>Unlikely:</b> No suitable habitat is present within or adjacent to the project site.
<i>Saldula usingeri</i> Wilbur Springs shorebug	-- / CNDDDB / --	Found only on wet substrate of spring outflows. Requires springs or creeks with high concentrations of sodium, chlorine, and lithium.	<b>Unlikely:</b> No suitable habitat is present within or adjacent to the project site.
PLANTS			
<i>Amsinckia lunaris</i> Bent-flowered fiddleneck	-- / -- / 1B	Coastal bluff scrub, cismontane woodland, and valley and foothill grassland at elevations of 3-500 meters. Annual herb in the Boraginaceae family; blooms March-June.	<b>Not Present:</b> Not identified during the survey in April 2014
<i>Antirrhinum subcordatum</i> Dimorphic snapdragon	-- / -- / 4	Chaparral and lower montane coniferous forest, sometimes on serpentine soils, at elevations of 185-800 meters. Annual herb in the Plantaginaceae family; blooms April-July.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Arctostaphylos canescens</i> ssp. <i>sonomensis</i> Sonoma canescent manzanita	-- / -- / 1B	Chaparral and lower montane coniferous forest, sometimes on serpentine soils, at elevations of 180-1675 meters. Perennial evergreen shrub in the Ericaceae family; blooms January-June.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Arctostaphylos manzanita</i> ssp. <i>elegans</i> Konocti manzanita	-- / -- / 1B	Chaparral, cismontane woodland, and lower montane coniferous forest, on volcanic soils, at elevations of 395-1615 meters. Perennial evergreen shrub in the Ericaceae family; blooms March-July.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Astragalus rattanii</i> var. <i>jepsonianus</i> Jepson's milk-vetch	-- / -- / 1B	Chaparral, cismontane woodland, and valley and foothill grassland, often on serpentine soils, at elevations of 295-700 meters. Annual herb in the Fabaceae family; blooms March-June.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site. Not identified during the survey in April 2014
<i>Brasenia schreberi</i> watershield	-- / -- / 2B	Freshwater marshes and swamps at elevations of 30-2200 meters. Perennial rhizomatous herb in the Cabombaceae family.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Calystegia collina</i> ssp. <i>oxyphylla</i> Mt. Saint Helena morning-glory	-- / -- / 4	Chaparral, valley and foothill grassland, and lower montane coniferous forest, on serpentine soils, at elevations of 279-1010 meters. Perennial rhizomatous herb in the Convolvulaceae family; blooms April-June.	<b>Not Present:</b> Not identified during the survey in April 2014

Species	Status (Service/ Department/CNPS)	General Habitat	Potential Occurrence within Project Vicinity
<i>Calystegia purpurata</i> ssp. <i>saxicola</i> Coastal bluff morning-glory	-- / -- / 1B	Coastal scrub, coastal bluff scrub, coastal dunes, and North Coast coniferous forest, at elevations of 10-105 meters. Perennial herb in the Convolvulaceae family; blooms April-June.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Ceanothus confusus</i> Rincon Ridge ceanothus	-- / -- / 1B	Chaparral, cismontane woodland, and closed-cone coniferous forest, on volcanic or serpentine soils, at elevations of 75-1065 meters. Perennial evergreen shrub in the Rhamnaceae family; blooms February-June.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Ceanothus divergens</i> Callistoga ceanothus	-- / -- / 1B	Chaparral on rocky volcanic or serpentine soils, at elevations of 170-950 meters. Perennial evergreen shrub in the Rhamnaceae family; blooms February-April.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Chlorogalum pomeridianum</i> var. <i>minus</i> Dwarf soaproot	-- / -- / 1B	Chaparral on serpentinite soils at elevations of 305-1000 meters. Perennial bulbiferous herb in the Agavaceae family; blooms May-August.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Cryptantha dissita</i> serpentine cryptantha	-- / -- / 1B	Chaparral on serpentine soils at elevations of 395-580 meters. Annual herb in the Boraginaceae family; blooms April-June.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Eriastrum brandegeae</i> Brandegee's eriastrum	-- / -- / 1B	Chaparral and cismontane woodlands, on sandy and volcanic soils, at elevations of 425-840 meters. Annual herb in the Polemoniaceae family; blooms April-August.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site. The project site is located outside of the elevation range for this species.
<i>Erigeron greenii</i> Green's narrow-leaved daisy	-- / -- / 1B	Chaparral on volcanic or serpentine soils, at elevations of 80-1058 meters. Perennial herb in the Asteraceae family; blooms May-September.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Eriogonum nervulosum</i> Snow Mountain buckwheat	-- / -- / 1B	Chaparral on serpentine soils, at elevations of 300-2105 meters. Perennial rhizomatous herb in the Polygonaceae family; blooms June-September.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Eryngium constancei</i> Loch Lomond button celery	FE / SE / 1B	Vernal pools at elevations of 460-855 meters. Annual/perennial herb in the Apiaceae family; blooms April-June.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site. The project site is located outside of the elevation range for this species.
<i>Fritillaria pluriflora</i> Adobe-lily	-- / -- / 1B	Chaparral, cismontane woodland, and valley and foothill grassland, often on adobe soils, at elevations of 60-705 meters. Perennial bulbiferous herb in the Liliaceae family; blooms February-April.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site. Not identified during survey in April 2014

Species	Status (Service/ Department/CNPS)	General Habitat	Potential Occurrence within Project Vicinity
<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	-- / SE / 1B	Vernal pools and marshes and swamps on lake margins at elevations of 10-2375 meters. Annual herb in the Plantaginaceae family; blooms April-August.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Grimmia torenii</i> Toren's grimmia	-- / -- / 1B	Found in rocky openings, boulder and rock walls, and carbonate and volcanic soils in chaparral, cismontane woodland, and lower montane coniferous forest and elevations of 325-1160 meters. Moss in the Grimmiaceae family.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Harmonia hallii</i> Hall's harmonia	-- / -- / 1B	Chaparral on serpentine soils at elevations of 500-975 meters. Annual herb in the Asteraceae family; blooms April-June.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site. The project site is located outside of the elevation range for this species.
<i>Hesperolinon adenophyllum</i> Glandular western flax	-- / -- / 1B	Chaparral, cismontane woodland, and valley and foothill grassland, usually on serpentine soils, at elevations of 150-1315 meters. Annual herb in the Linaceae family; blooms May-August.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Hesperolinon bicarpellatum</i> Two-carpellate western flax	-- / -- / 1B	Chaparral on serpentine soils, at elevations of 60-1005 meters. Annual herb in the Linaceae family; blooms May-July.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Hesperolinon didymocarpum</i> Lake County western flax	-- / SE / 1B	Chaparral, cismontane woodland, and valley and foothill grassland, on serpentine soils, at elevations of 330-365 meters. Annual herb in the Linaceae family; blooms May-July.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Hesperolinon sharsmithiae</i> Sharsmith's western flax	-- / -- / 1B	Chaparral on serpentine soils at elevations of 270-300 meters. Annual herb in the Linaceae family; blooms May-July.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Horkelia bolanderi</i> Bolander's horkelia	-- / -- / 1B	Edges and vernal mesic areas of chaparral, lower montane coniferous forest, meadows and seeps, and valley and foothill grassland at elevations of 450-1100 meters. Perennial herb in the Rosaceae family; blooms June-August.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site. The project site is located outside of the elevation range for this species.
<i>Imperata brevifolia</i> California satintail	-- / -- / 2B	Mesic areas of chaparral, coastal scrub, Mojavean desert scrub, riparian scrub, and meadows and seeps (often alkali) at elevations of 0-1215 meters. Perennial rhizomatous grass in the Poaceae family; blooms September-May.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.

Species	Status (Service/ Department/CNPS)	General Habitat	Potential Occurrence within Project Vicinity
<i>Lasthenia burkei</i> Burke's goldfields	FE / SE / 1B	Vernal pools and mesic areas of meadows and seeps at elevations of 15-600 meters. Annual herb in the Asteraceae family; blooms April-June.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Layia septentrionalis</i> Colusa layia	-- / -- / 1B	Chaparral, cismontane woodland, and valley and foothill grassland, on serpentine soils, at elevations of 100-1095 meters. Annual herb in the Asteraceae family; blooms April-May.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Legenere limosa</i> Legenere	-- / -- / 1B	Vernal pools and wetlands at elevations of 1-880 meters. Annual herb in the Campanulaceae family; blooms April- June.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Leptosiphon jepsonii</i> Jepson's leptosiphon	-- / -- / 1B	Chaparral and cismontane woodland, usually on volcanic soils, at elevations of 100-500 meters. Annual herb in the Polemoniaceae family; blooms March-May.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Limnanthes floccosa</i> ssp. <i>floccosa</i> Wooly meadowfoam	-- / -- / 4	Vernally mesic areas of chaparral, cismontane woodland, valley and foothill grassland, and vernal pools at elevations of 60-1335 meters. Annual herb in the Limnathaceae family; blooms March-June.	<b>Not Present:</b> Not identified during the survey in April 2014
<i>Lupinus antoninus</i> Anthony Peak lupine	-- / -- / 1B	Upper and lower montane coniferous forest, on rocky soils, at elevations of 1220-2285 meters. Perennial herb in the Fabaceae family; blooms May-July.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site. The project site is located outside of the elevation range for this species.
<i>Lupinus sericatus</i> Cobb Mountain lupine	-- / -- / 1B	Chaparral, broadleaved upland forest, cismontane woodland, and lower montane coniferous forest at elevations of 275-1525 meters. Perennial herb in the Fabaceae family; blooms March-June.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Malacothamnus hallii</i> Hall's bush mallow	-- / -- / 1B	Chaparral and coastal scrub at elevations of 10-760 meters. Perennial evergreen shrub in the Malvaceae family; blooms May-October.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Mielichhoferia elongata</i> Elongate copper moss	-- / -- / 2B	Usually on vernal mesic areas of cismontane woodland, on metamorphic or rocky soils, at elevations of 500-1300 meters. Moss in the Mniaceae family.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site. The project site is located outside of the elevation range for this species.
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i> Baker's navarretia	-- / -- / 1B	Mesic areas of lower montane coniferous forest, cismontane woodland, valley and foothill grassland, meadows and seeps, and vernal pools at elevations of 5-1740 meters. Annual herb in the Polemoniaceae family; blooms April-July.	<b>Not Present:</b> Not identified during the survey in April 2014

Species	Status (Service/ Department/CNPS)	General Habitat	Potential Occurrence within Project Vicinity
<i>Navarretia leucocephala</i> ssp. <i>pauciflora</i> Few-flowered navarretia	FE / ST / 1B	Vernal pools on volcanic ash flow at elevations of 400-855 meters. Annual herb in the Polemoniaceae family; blooms May-June.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Navarretia leucocephala</i> ssp. <i>pliantha</i> Many-flowered navarretia	FE / SE / 1B	Vernal pools on volcanic ash flow at elevations of 30-950 meters. Annual herb in the Polemoniaceae family; blooms May-June.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Orcuttia tenuis</i> Slender Orcutt grass	FT / SE / 1B	Often found on gravelly soils in vernal pools at elevations of 35-1760 meters. Annual grass in the Poaceae family; blooms May-October.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Panicum acuminatum</i> var. <i>thermal</i> Geyser's panicum	-- / SE / 1B	Geothermally-altered soil, sometimes on streamsides, in closed-cone coniferous forest, riparian forest, and valley and foothill grasslands at elevations of 305-2470 meters. Annual/perennial grass in the Poaceae family; blooms June-August.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Penstemon newberryi</i> var. <i>sonomensis</i> Sonoma beardtongue	-- / -- / 1B	Chaparral on rocky soils at elevations of 700-1370 meters. Perennial herb in the Plantaginaceae family; blooms April-August.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site. The project site is located outside of the elevation range for this species.
<i>Potamogeton zosteriformis</i> Eel-grass pondweed	-- / -- / 2B	Freshwater marshes and swamps at elevations of 0-1860 meters. Annual herb in the Potamogetonaceae family; blooms June-July.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Sedella leiocarpa</i> Lake County stonecrop	FE / SE / 1B	Vernally mesic depression in volcanic outcrops in cismontane woodland, valley and foothill grassland, and vernal pool at elevations of 365-790 meters. Annual herb in the Crassulaceae family; blooms April-May.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Sidalcea oregana</i> ssp. <i>hydrophila</i> marsh checkerbloom	-- / -- / 1B	Mesic areas of riparian forest and meadows and seeps at elevations of 1100-2300 meters. Perennial herb in the Malvaceae family; blooms July-August.	<b>Not Present:</b> Suitable habitat is present the project site; however, the project site is located outside of the elevation range for this species.
<i>Streptanthus brachiatus</i> ssp. <i>brachiatus</i> Socrates mine jewelflower	-- / -- / 1B	Closed-cone coniferous forest and chaparral, usually on serpentine soils, at elevations of 545-1000 meters. Perennial herb in the Brassicaceae family; blooms May-June.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site. The project site is located outside of the elevation range for this species.

Species	Status (Service/ Department/CNPS)	General Habitat	Potential Occurrence within Project Vicinity
<i>Streptanthus brachiatus ssp. hoffmanii</i> Freed's jewelflower	-- / -- / 1B	Cismontane woodland and chaparral, usually on serpentine soils, at elevations of 490-1220 meters. Perennial herb in the Brassicaceae family; blooms May-July.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site. The project site is located outside of the elevation range for this species.
<i>Streptanthus hesperidis</i> green jewelflower	-- / -- / 1B	Openings in cismontane woodland and chaparral, usually on rocky serpentine soils, at elevations of 130-760 meters. Annual herb in the Brassicaceae family; blooms May-July.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Streptanthus morrisonii</i> Morrison's jewelflower	-- / -- / 1B	Chaparral, usually on rocky, serpentine, and talus soils, at elevations of 120-585 meters. Perennial herb in the Brassicaceae family; blooms May-September.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Trichostema ruygtii</i> Napa bluecurls	-- / -- / 1B	Cismontane woodland, valley and foothill grassland, chaparral, lower montane coniferous forest, and vernal pools at elevations of 30-680 meters. Annual herb in the Lamiaceae family; blooms June-October.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.
<i>Trifolium hydrophilum</i> Saline clover	-- / -- / 1B	Marshes and swamps, mesic and alkaline valley and foothill grassland, and vernal pools at elevations of 0-300 meters. Annual herb in the Fabaceae family; blooms April-June.	<b>Not Present:</b> No suitable habitat is present within or adjacent to the project site.

## **STATUS DEFINITIONS**

### **Federal**

- FE = listed as Endangered under the federal Endangered Species Act
- FT = listed as Threatened under the federal Endangered Species Act
- FC = Candidate for listing under the federal Endangered Species Act
- = no listing

### **State**

- SE = listed as Endangered under the California Endangered Species Act
- ST = listed as Threatened under the California Endangered Species Act
- SR = listed as Rare under the California Endangered Species Act
- SC = Candidate for listing under the California Endangered Species Act
- CSC = California Department of Fish and Wildlife Species of Concern
- CFP = California Fully Protected Animal
- = no listing

### **California Native Plant Society**

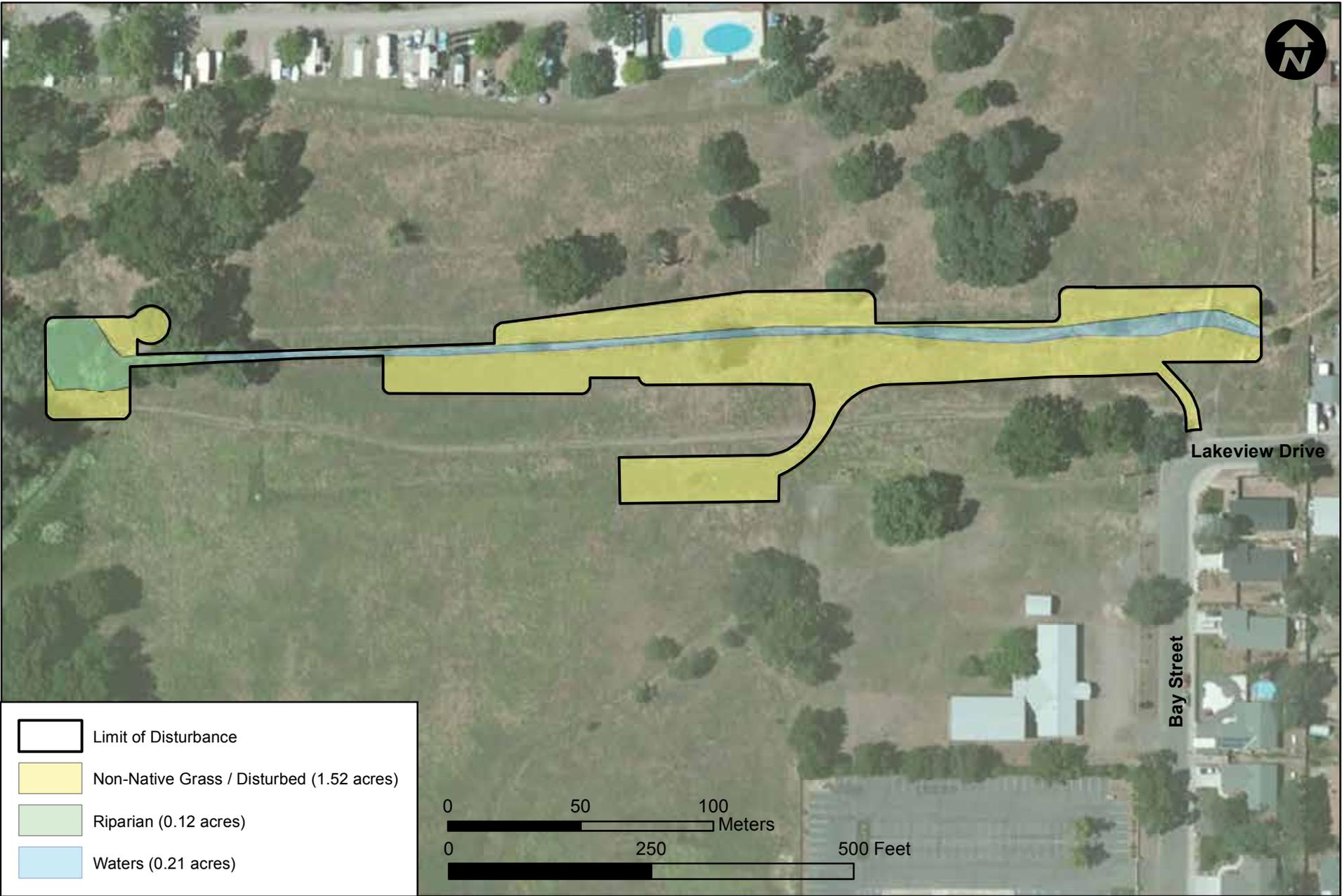
- 1B = List 1B species; rare, threatened or endangered in California and elsewhere
- 2B = List 2B species; rare, threatened, or endangered in California, but more common elsewhere
- 4 = Limited distribution (CNPS Watch List)
- = no listing

### **POTENTIAL TO OCCUR**

- Present = known occurrence of species within the site; presence of suitable habitat conditions; or observed during field surveys
- High = known occurrence of species in the vicinity from the CNDDDB or other documentation; presence of suitable habitat conditions
- Moderate = known occurrence of species in the vicinity from the CNDDDB or other documentation; presence of marginal habitat conditions within the site
- Low = species known to occur in the vicinity from the CNDDDB or other documentation; lack of suitable habitat or poor quality
- Unlikely = species not known to occur in the vicinity from the CNDDDB or other documentation, no suitable habitat is present within the site
- Not Present = species was not observed during surveys, no suitable habitat is present within the site

## **Attachment 4**

### **Habitat Map**



Limit of Disturbance



Non-Native Grass / Disturbed (1.52 acres)



Riparian (0.12 acres)



Waters (0.21 acres)

0 50 100 Meters

0 250 500 Feet



# Habitat Map

June 2014

Anderson Marsh State Historic Park  
Molesworth Channel Erosion Stabilization

## **Attachment 5**

### **Wetland and Waters of the U.S. Delineation Report**

**Resource Protection through Erosion Stabilization Project  
Molesworth Channel  
Anderson Marsh State Historic Park**



**Delineation of Potential  
Jurisdictional Wetlands and Waters  
Under Section 404 of the Clean Water Act**

**October 2, 2014**

**Prepared for:**

**California Department of  
Parks and Recreation  
Northern Service Center  
One Capitol Mall, Suite 410  
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# Chapter 1. Introduction

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## 1.1 Project Description

This delineation of wetlands and other Waters of the U.S. (wetlands and waters) has been prepared to evaluate the potential of the proposed Resource Protection through Erosion Stabilization Project Molesworth Channel (proposed project), located at Anderson Marsh State Historic Park (AMSHP) within the City of Clearlake, Lake County, California, to impact federally jurisdictional resources (Figure 1). The Department of Parks and Recreation (DPR) proposes to protect sensitive resources by implementing targeted bank stabilization measures along four distinct locations within Molesworth Channel (Figure 2).

## 1.2 Regulatory Background

The U.S. Army Corps of Engineers (USACE) is the primary federal agency responsible for regulating wetlands and waters of the United States (waters). The USACE and the Environmental Protection Agency (EPA) define wetlands as:

“Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (USACE 1982; EPA 1980).

*The Field Guide for Wetland Delineation: 1987 Corps of Engineers Manual (Wetland Manual) (Wetland Training Institute 2002)* describes the three environmental parameters used in delineating jurisdictional wetlands. The three parameters are:

1. *Vegetation.* The prevalent vegetation consists of macrophytes that are typically adapted to areas having hydrologic and soil conditions described in the definition of a wetland above. Hydrophytic species, due to morphological, physiological, and/or reproductive adaptation(s), have the ability to grow effectively, compete, reproduce, and/or persist in anaerobic soil conditions;
2. *Soil.* Soils are present and have been classified as hydric or they possess characteristics that are associated with reducing soil conditions; and
3. *Hydrology.* The area is inundated either permanently or periodically at mean water depths of  $\leq$  6.6 feet, or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation.

The Wetland Manual states that “evidence of a minimum of one positive wetland indicator from each parameter...must be found in order to make a positive wetland determination.” However, climatic and hydrologic conditions in the Arid West often make it difficult to identify wetland indicators. Therefore, on December 18, 2006, the San Francisco District of the USACE distributed a public notice requiring that, as of January 1, 2007, any new delineation work within their jurisdiction follow the guidance contained in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Supplement) (USACE 2006)*. Version 2.0 of the Supplement was released in November 2008 and replaces the 2006 “interim” version (USACE 2008). The Supplement provides both indicators for each parameter that are specific to the Arid West region and guidance on difficult wetland situations where indicators may be lacking.



# Location Map

June 2014

Resource Protection through Erosion Stabilization Project  
Molesworth Channel Anderson Marsh State Historic Park

Figure

1



Waters are defined as:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All “other waters” such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
  - i. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
  - ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  - iii. Which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States under the definition;
5. Tributaries of waters identified in paragraphs [1-4] of this section;
6. The territorial seas;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs [1-6] of this section (USACE 1982).

As noted above, “other waters,” including lakes, ponds, and streams, are subject to USACE jurisdiction. “Other waters” are characterized by an ordinary high water (OHW) mark, which is defined as:

“that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (USACE 1982).

In the field, “other waters” are identified by the presence of a defined river or stream bed, a bank, and evidence of the flow of water.

On June 5, 2007, the USACE and the EPA developed a Memorandum Regarding *Clean Water Act Jurisdiction Following Rapanos v. United States* which states that the agencies will assert jurisdiction over the following categories of water bodies:

- TNWs [traditional navigable waters] and wetlands adjacent to TNWs and
- Non-navigable tributaries of TNWs that are relatively permanent (i.e., the tributaries typically flow year-round or have continuous flow at least seasonally) and wetlands that directly abut such tributaries

In addition, the following waters will also be found jurisdictional based on a fact-specific analysis that they have a significant nexus with a TNW:

- Non-navigable tributaries that do not typically flow year-round or have continuous flow at least seasonally;

- Wetlands adjacent to such tributaries; and
- Wetlands adjacent to but that do not directly about a relatively permanent non-navigable tributary

A significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a TNW. Principal considerations when evaluating significant nexus include the volume, duration, and frequency of the flow of water in the tributary and the proximity of the tributary to a TNW, plus the hydrologic, ecologic, and other functions performed by the tributary and all of its adjacent wetlands” (USACE & EPA 2007).

The term “Navigable Waters of the U.S.” is defined to include

“all those waters that are subject to the ebb and flow of the tide, and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce” (USACE 1982).

## Chapter 2. Methods

---

This wetland and other waters delineation was conducted in accordance with the requirements set forth in both the Wetland Manual and the Supplement, as appropriate. Prior to conducting field surveys, available reference materials were reviewed, including the National Wetlands Inventory Wetland Mapper (Service 2014), the Soil Survey for Lake County (USDA-NRCS 1989), the list of Hydric Soils of the United States (USDA 2014b), the Web Soil Survey (USDA-NRCS 2014a), project plans provided by DPR, and aerial photographs of the site.

A delineation was conducted on April 24, 2014, by Denise Duffy & Associates, Inc. (DD&A) Environmental Scientists, Josh Harwayne and Jami Davis. The methods for delineating wetlands and other waters of the U.S. are described in detail below.

### 2.1. Field Methods

The data collected during the field surveys were recorded on Wetland Determination Data Forms for the Arid West Region provided in the Supplement (Appendix A). Eleven sampling points were taken within and adjacent to the Molesworth channel. Data collected at each sampling point was analyzed to determine if wetlands and other waters were present. As described above, evidence of a minimum of one positive primary wetland indicator from each parameter was necessary in order to make a positive wetland determination. Indicators described in the USACE manual used to make wetland determinations at each sampling point are described below.

#### 2.1.1. VEGETATION

Typically when conducting a wetland delineation vegetation is broken into four strata for evaluation: tree, sapling/shrub, herb, and woody vines. Dominant plant species and approximate percent cover were recorded for each stratum. Additionally, a list of plant species occurring within the project site was recorded (Appendix B). Plant species were identified using *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al. 2012), and were assigned a wetland status according to the *Arid West 2014 Regional Wetland Plant List* (USACE 2014). This wetland classification system is based on the expected frequency of occurrence in wetlands as described in Table 2-1.

**Table 2-1: Wetland Vegetation Classification System**

Symbol	Indicator Category	Definition	Frequency of Occurrences
<b>OBL</b>	Obligate Wetland Plants	Always found in wetlands	>99%
<b>FACW</b>	Facultative Wetland Plants	Most often occur in wetlands	67-99%
<b>FAC</b>	Facultative Plants	Equal likelihood of occurring in wetlands and non-wetlands	33-67%
<b>FACU</b>	Facultative Upland Plants	Most often occur in non-wetlands	1-33%
<b>UPL</b>	Obligate Upland Plants	Always found in non-wetlands	<1%
<b>NL</b>	Not Listed (Assumed Upland)		

The “dominance test”, as described in the Supplement, was applied for each survey point. If greater than 50 percent of the dominant plant species across all strata were rated OBL, FACW, or FAC, then the plant community “passed” the dominance test and the vegetation was determined to be hydrophytic. Neither the prevalence test or morphological adaptations indicator were used as the conditions described in the manual for each were absent (i.e., plant community failing the dominance test with presence of both hydric soil and wetland hydrology)

### **2.1.2. SOILS**

The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as:

“A soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part” (USDA-NRCS 1995).

The soil at each survey point was evaluated by digging a 20-inch hole, when possible, and identifying soil horizons, color, and texture, as well as any hydric soil indicators (as described in the Supplement). Soil color was evaluated by comparing a small wetted piece of soil to Munsell Soil Color Charts (Munsell 2000). The last digit of the Munsell Soil Notation refers to the chroma of the sample. This notation consists of numbers beginning with 0 for neutral grays and increasing at equal intervals to a maximum of about 20. Chroma values of the soil matrix which are one or less, or of two or less if mottling is present, are typical of soils which have developed under anaerobic conditions and indicate hydric soils, unless otherwise noted in the Supplement for certain soil types.

### **2.1.3. HYDROLOGY**

The Wetland Manual defines “wetland hydrology” as:

“Encompassing all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively. Such characteristics are usually present in areas that are inundated or have soils that are saturated to the surface for sufficient duration to develop hydric soils and support vegetation typically adapted for life in periodically anaerobic soil conditions.”

Each survey point was evaluated for wetland hydrology using the indicators described in the Supplement. Evidence of one Primary Indicator sufficiently identified wetland hydrology; however, two or more Secondary Indicators were necessary if no Primary Indicators were observed. However, as stated in the Supplement, the Arid West is characterized by extended dry seasons in most years and by extreme temporal and special variability in rainfall, which causes many wetlands in the region to be dry for much of the year. At these times, hydrology indicators may be lacking altogether. Therefore, a “lack of an indicator is not evidence for the absence of wetland hydrology.” Guidance is provided in the supplement for difficult wetland situations such as this.

# Chapter 3. Evaluation Area Description

---

## 3.1 Vegetation

The project site consists of relatively flat, non-native grassland bisected east to west by a constructed drainage channel approximately 30 feet wide and 10 feet deep (Figure 3). The bed and bank of the Molesworth channel are relative constant throughout the evaluation area having a trapezoidal shape, with the bed relatively flat and the bank sloped at approximately 2:1. The top of bank meets a flat plain on both sides of the channel. The vegetation found on the bank is fairly consistent with that found on the surrounding acreage and consists of non-native grassland. The bed of the channel is relatively unvegetated.<sup>1</sup> In the few portions of the channel where vegetation is found it is sparse.

The non-native grassland within the project site appears highly disturbed as the result of land use history, such as the excavation and maintenance of the channel. The grassland on the vegetated portions of the channel slope and adjacent upland is dominated by non-native annual grass and forb species such as, wild oat (*Avena fatua*), soft chess (*Bromus hordeaceus*), long-beak filaree (*Erodium botrys*), yellow star thistle (*Centaurea solstitialis*), and wooly vetch (*Vicia villosa*). The riparian portion of the project site is dominated by an over story of Fremont's cottonwood (*Populus fremontii*) and valley oak (*Quercus lobata*), and an understory of poison oak (*Toxicodendron diversilobum*), Himalayan blackberry (*Rubus armeniacus*), and English ivy (*Hedera helix*). Along some of the sloped channel banks, a number of tree species are present, the majority of which are Fremont's cottonwood, valley oak (*Quercus lobata*), and gray pine (*Pinus sabiniana*). The bed is unvegetated to very sparsely vegetated.

## 3.2 Soils

Due to the low gradient of the channel and the occasional backwater condition from the lake, sediment entrained in the stream flow from the upper watershed is deposited in this reach of the channel. The superficial soils at the site are characterized as fairly erosive, underlain by stratified clay loam which is generally more resistive to erosion. As a result of the sedimentation in the lower reach of the channel, and the underlying stratified clay loam, the channel banks are experiencing lateral expansion (widening) within the project reach.

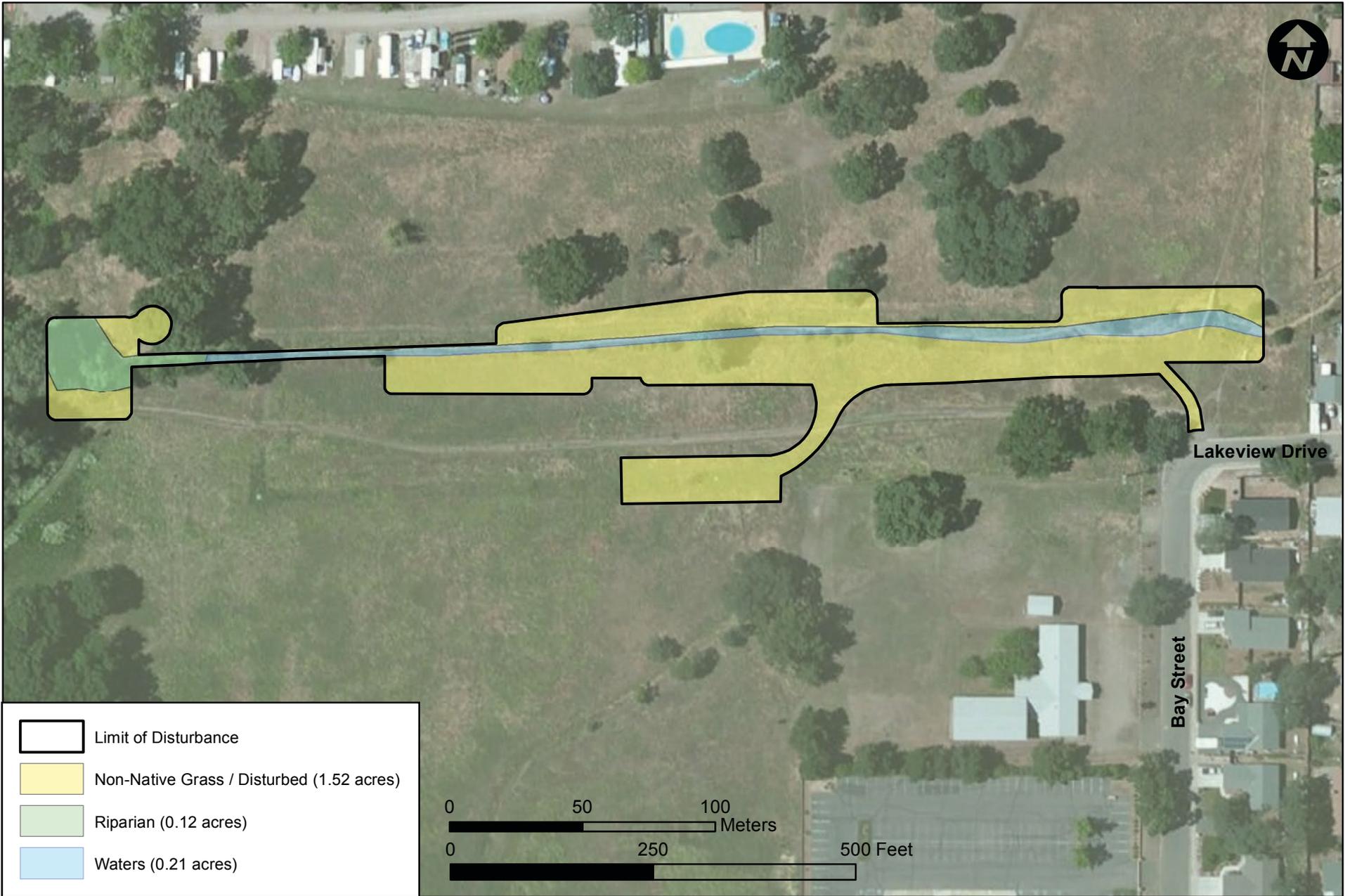
The NRCS Soil Survey identifies two soil mapping units within the project site (Figure 4). The majority of the project site is present within Still Loam mapping unit; however, a small portion is within the Asbill Clay Loam, 5-8% slopes mapping unit. The Soil Survey (USDA-NRCS 1989; USDA-NRCS 2014a) description of these mapping units is presented below with an indication of whether the soil is classified as hydric or not according to the National Hydric Soils List (USDA-NRCS 2014b). Please note that the National Hydric Soils List cannot be used in the field to determine hydric soils as it is only a list of soils that are *likely* to be hydric.

*Still Loam (232)*: This is a very deep, well-drained soil. This soil is found on alluvial flats and is alluvium derived from shale and siltstone. Elevation is usually 600 to 2,000 feet. Mean annual precipitation is 12 to 30 inches. Still loam is listed as hydric in Lake County, California on the National Hydric Soils List.

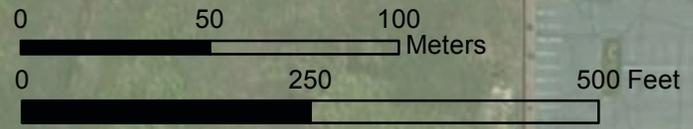
*Asbill Clay Loam, 5-8% slopes (103)*: This is a moderately deep, well-drained soil. This soil is found on hills and is residuum weathered from shale and siltstone. Elevation is usually 1,350 to 2,100 feet. Mean annual precipitation is 25 to 40 inches. Asbill clay loam, 5 to 8% slopes is not listed as hydric in Lake County, California on the National Hydric Soils List.

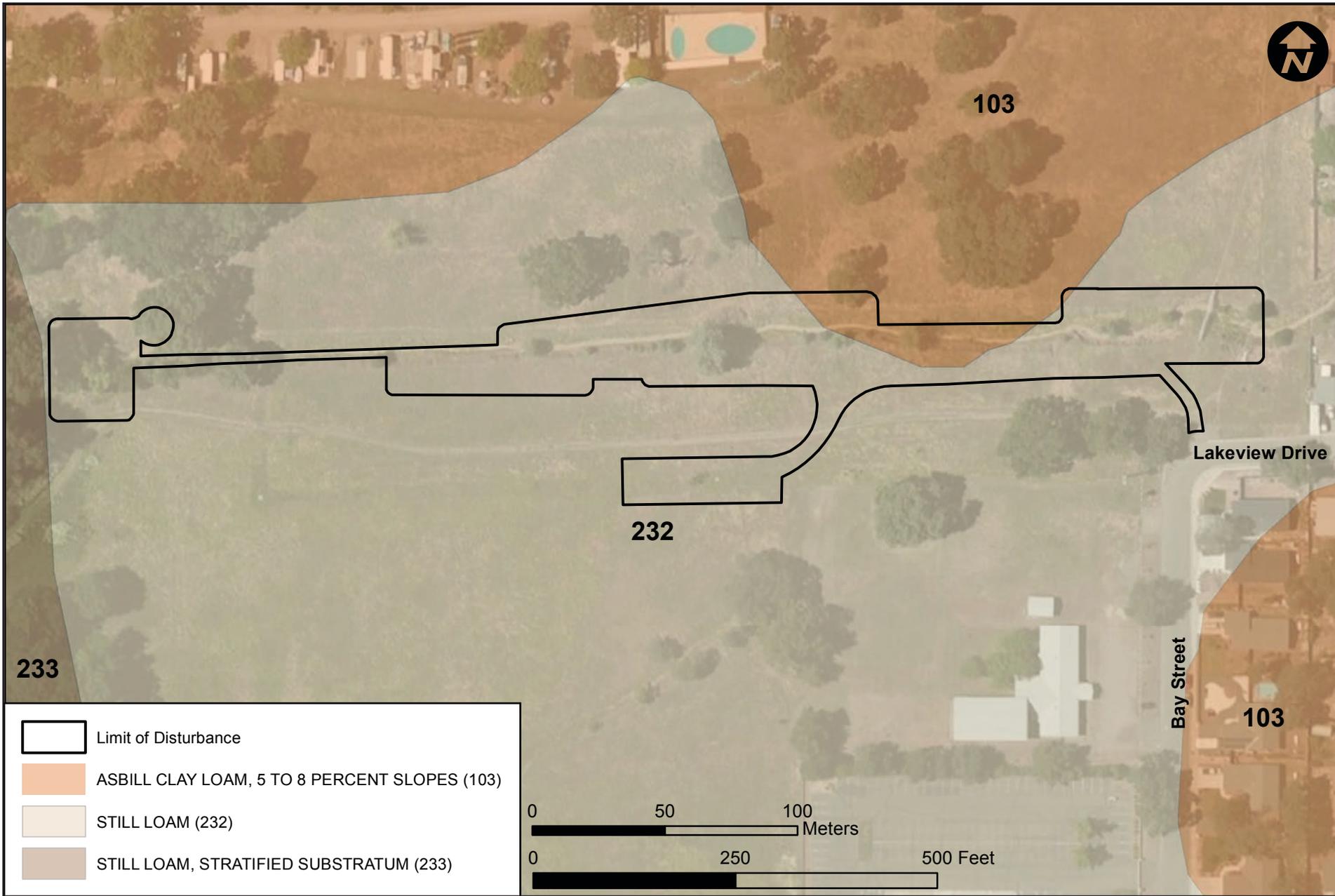
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<sup>1</sup> Vegetative cover is less than 5% along the length of the channel within the evaluation area.



	Limit of Disturbance
	Non-Native Grass / Disturbed (1.52 acres)
	Riparian (0.12 acres)
	Waters (0.21 acres)





# Soils Map

June 2014

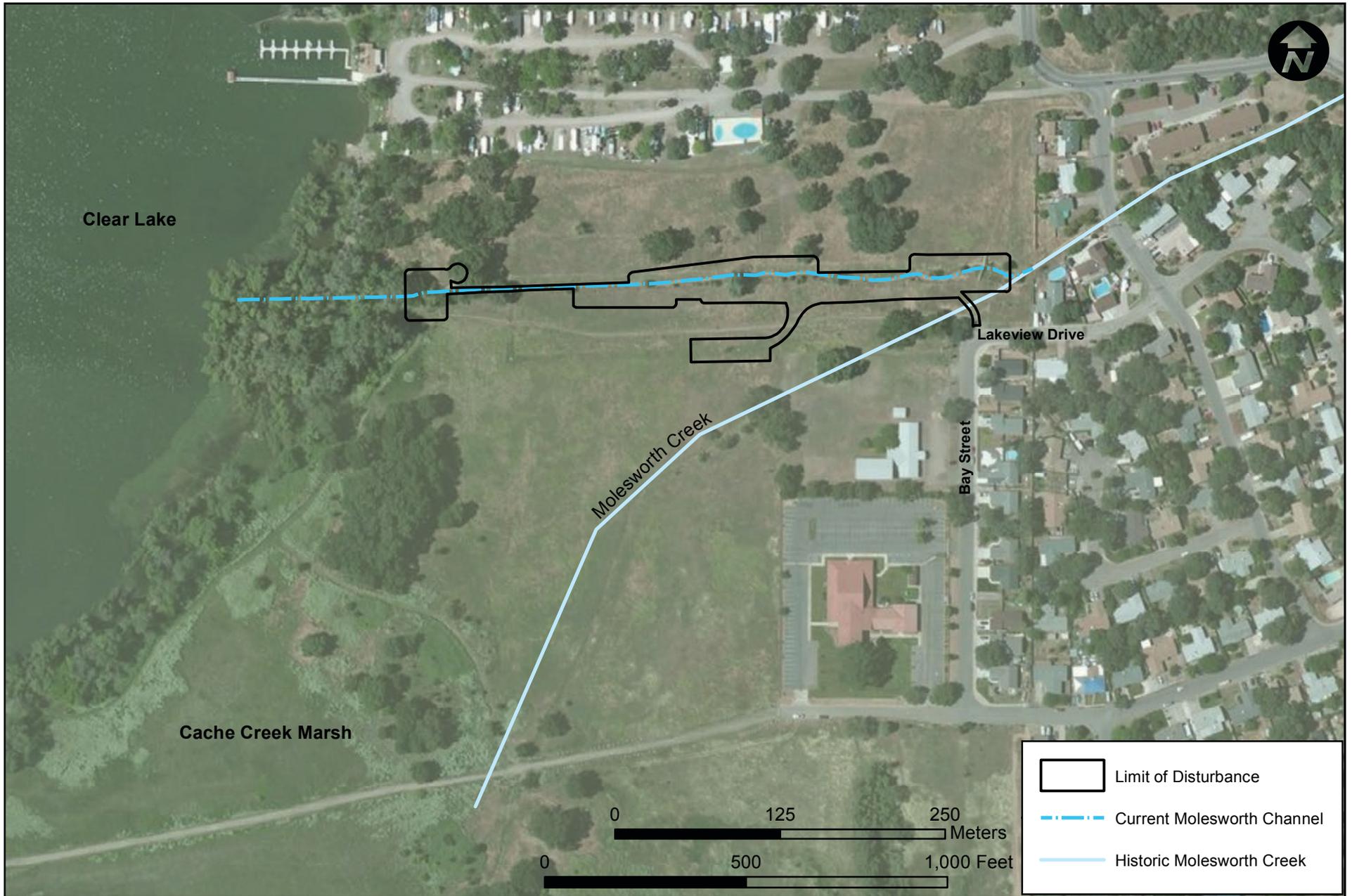
Resource Protection through Erosion Stabilization Project  
 Molesworth Channel Anderson Marsh State Historic Park

Figure

4

### **3.3 Hydrology**

Molesworth Channel was constructed between 1958 and 1970, prior to State acquisition, and has been modified into a straight, roughly trapezoidal, ephemeral channel within AMSHP (Figure 5). Prior to development of the residential neighborhoods to the north and east, the channel flowed in a southerly direction where it emptied directly into Cache Creek, the sole outlet for Clear Lake. However, to aid stormwater movement away from the residences, the channel was straightened to flow west and drain directly into Clear Lake.



# Hydrology Map

October 2014

Resource Protection through Erosion Stabilization Project  
Molesworth Channel Anderson Marsh State Historic Park

Figure

5

## Chapter 4. Results

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Significant channelization, presence of riparian tree species, and presence of some facultative wetland plant species within the Molesworth channel indicates the potential for wetlands or Waters of the US (Appendix C). The results of the delineation effort reveal that the Molesworth channel does not support wetlands that meet the three parameter criteria set forth by the USACE. However, potentially jurisdictional waters were identified within the channel (Appendix C). Results of the evaluation of the vegetation, soil, and hydrology are presented below. Datasheets for each of the sampling points are presented in Appendix A.

### 4.1 Vegetation

One out of the eleven sampling points meets the criteria for wetland vegetation: sampling point 1 (Appendix A and C). At this sampling point, two FAC plant species were recorded: Italian ryegrass (*Lolium perenne*) and Fremont's cottonwood. Beardless ryegrass (*Leymus triticoides*), also a FAC plant species, was identified at sampling point 10; however, this species was not a dominant and was present among other non-wetland plants, and this point therefore did not meet the hydrophytic vegetation criteria. All other plant species do not meet the wetland plant indicator status specified in the *Arid West 2014 Regional Wetland Plant List* (USACE 2014).

### 4.2 Soils

No hydric soils indicators were recorded. The soils were consistently loam on the bank and upland associated with the channel, and were consistently cobble and gravel within the bed.

### 4.3 Hydrology

No wetland hydrology indicators were documented within the bank or uplands above top of bank. Multiple secondary indicators of hydrology were consistently documented within the channel bank including, drainage patterns, water marks, sediment deposits, and drift deposits. These secondary indicators can be the result of short lived high energy hydrologic events and may not be present as the result of sustained soil saturation. It is likely that the channel is saturated in association with large precipitation events and does not sustain saturated soils for the duration necessary to facilitate the growth of hydrophytic vegetation or the presence of hydric soils. Peak discharge rates for the channel were calculated by Fall Creek Engineering Inc. utilizing two methodologies in their hydraulic analysis for the project (2014). Table 4-1 summarizes the results of their analysis.

**Table 3-1. Streamflow Analysis Results**

Flood Frequency	Peak Discharge (cfs)		<sup>2</sup> Water Surface Elevation (ft above mean sea level)
	Regional Regression Equation Analysis	Rational Method Analysis	
2-yr	78.2	154.3	1,330.2 - 1,337.7
5-yr	125.5	170.7	(not calculated)
10-yr	170.4	184.2	(not calculated)
25-yr	225.4	203.7	(not calculated)
50-yr	280.9	219.9	(not calculated)
100-yr	323.8	237.3	1,331.4 - 1,339.3

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<sup>2</sup> Please note the elevation at the base of the channel is approximately 1,330 feet above mean sea level.

These secondary indicators of hydrology, in addition to the extent of the vegetation within the channel, are indicators of OHW within the channel. As such potential Waters of the U.S. are present.

#### **4.4 Potentially Jurisdictional Wetlands and Other Waters**

No wetlands were documented within the evaluation area. However, within the project site 0.26 acre of potential Waters of the U.S. along the approximately 1,176 linear feet of the Molesworth channel was documented. These non-relatively permanent waters<sup>3</sup> empty directly into Clear Lake, an intrastate lake (other waters) that flows into Cache Creek and then into the Sacramento River, a navigable water. As such, tributaries conveying waters to Clear Lake have the potential to be federally jurisdictional.

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<sup>3</sup> Non-relatively permanent waters refers to ephemeral waters, or waters that flow less than three months a year.

## Chapter 5. References

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# **Appendix A: Wetland Determination Data Forms for the Arid West Region**

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**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Molesworth Creek City/County: Clear Creek / Lake Sampling Date: 4-24-14  
 Applicant/Owner: CA State Parks State: CA Sampling Point: 1  
 Investigator(s): Jami Davis Josh Harwayne Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): bottom of low flow chan Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): LRRC Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Still Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Third year of drought -</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Populus deltoides</u>	<u>2</u>	<u>N</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
Total Cover: <u>2</u>				
<b>Sapling/Shrub Stratum</b>				
1. <u>None</u>	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Total Cover: <u>0</u>				
<b>Herb Stratum</b>				
1. <u>Lolium perenne</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 <sup>1</sup> ___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>5</u>				
<b>Woody Vine Stratum</b>				
1. <u>None</u>	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks: Hydrophytic Vegetation Present? Yes <u>X</u> No _____				

**SOIL**

Sampling Point: 1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR4/4						Sandy gravel + cobble	
6-20	10YR3/4						Sandy clay + cobble	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Vernal Pools (F9)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

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

Remarks:  
 moist but not saturated

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
<b>Primary Indicators (any one indicator is sufficient)</b>	<input checked="" type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Biotic Crust (B12)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	
<input type="checkbox"/> Other (Explain in Remarks)	

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes X No \_\_\_\_\_

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

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Molesworth Creek City/County: Clear Creek/Lake Sampling Date: 4/24/14  
 Applicant/Owner: CA State Parks State: CA Sampling Point: 2  
 Investigator(s): Jami Davis Josh Harwayne Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): mid first terrace Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): LRRC Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Still Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>In-channel - waters of the U.S.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. <u>None</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)																
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)																
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)																
4. _____				<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = _____																			
FACW species _____	x 2 = _____																			
FAC species _____	x 3 = _____																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Total Cover: _____																				
<b>Sapling/Shrub Stratum</b>																				
1. <u>None</u>																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
Total Cover: _____																				
<b>Herb Stratum</b>																				
1. <u>Vicia villosa</u>	<u>40</u>	<u>Y</u>	<u>UPL</u>																	
2. <u>Rumex crispus</u>	<u>5</u>	<u>N</u>	<u>FAC</u>																	
3. <u>Rafinesquia californica</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>																	
4. <u>Grass 1</u>	<u>20</u>	<u>Y</u>	<u>(UPL)</u>																	
5. _____																				
6. _____																				
7. _____																				
8. _____																				
50% 42.5 20% = 17 Total Cover: <u>85</u>																				
<b>Woody Vine Stratum</b>																				
1. <u>None</u>																				
2. _____																				
Total Cover: _____																				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____																				
Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 <sup>1</sup> ___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.																				
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>																				
Remarks:																				

**SOIL**

Sampling Point: 2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	5YR 4/4						Silty loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

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

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

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Thin Muck Surface (C7)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes  No \_\_\_\_\_

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

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Molesworth Creek City/County: Clear Lake/Lake Sampling Date: 4-24-14  
 Applicant/Owner: CA State Parks State: CA Sampling Point: 3  
 Investigator(s): Jami Davis Josh Harway Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): top of bank-out of chan Local relief (concave, convex, none): flat Slope (%): 0  
 Subregion (LRR): LPRC Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Stall Loam NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks:	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>None</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
4. _____				
Total Cover: _____				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. <u>None</u>				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
				UPL species _____ x 5 = _____
Total Cover: _____				Column Totals: _____ (A) _____ (B)
Herb Stratum				Prevalence Index = B/A = _____
1. <u>Filago californica</u>	<u>5</u>	<u>N</u>	<u>NL</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 <sup>1</sup> ___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>Centaurea solstitialis</u>	<u>10</u>	<u>N</u>	<u>NL</u>	
3. <u>Larkia sp.</u>	<u>1</u>	<u>N</u>	<u>NL</u>	
4. <u>Avena fatua</u>	<u>60</u>	<u>Y</u>	<u>NL</u>	
5. <u>Elymus glaucus</u>	<u>1</u>	<u>N</u>	<u>FACU</u>	
6. <u>Poa bulbosa</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
7. <u>Viria villosa</u>	<u>1</u>	<u>N</u>	<u>NL</u>	
8. <u>Hirschfeldia incana</u>	<u>1</u>	<u>N</u>	<u>NL</u>	
Total Cover: <u>81%</u>				
Woody Vine Stratum				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. <u>None</u>				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____		Hydrophytic Vegetation Present? Yes _____ No <u>X</u>

Remarks:  
50% = 40.5 20% = 16.2%

**SOIL**

Sampling Point: 3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR4/4						loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C)    | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Vernal Pools (F9)          |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          |   |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

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

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

Remarks:

Wobbles - can't dig further

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                              | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                            | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                   | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine)         | <input type="checkbox"/> Presence of Reduced Iron (C4)                 | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)    | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                    | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |  | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |  | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

Field Observations:

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

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Molesworth Creek City/County: Clear Creek/Lake Sampling Date: 4-24-14  
 Applicant/Owner: CA State Parks State: CA Sampling Point: 4  
 Investigator(s): Jami Davis Josh Harway Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): top of bank - out of chan Local relief (concave, convex, none): flat Slope (%): 0  
 Subregion (LRR): LRR C Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: still loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Third year of drought</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)																
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)																
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)																
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = _____																			
FACW species _____	x 2 = _____																			
FAC species _____	x 3 = _____																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Total Cover: _____																				
<b>Sapling/Shrub Stratum</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
Total Cover: _____																				
<b>Herb Stratum</b>																				
1. <u>Bromus hordeaceus</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>																	
2. <u>Vicia sativa</u>	<u>40</u>	<u>Y</u>	<u>NL</u>																	
3. <u>Avena fatua</u>	<u>30</u>	<u>Y</u>	<u>NL</u>																	
4. <u>(Aristida sp (purpurata saxicola?))</u>	<u>1</u>	<u>N</u>	<u>NL</u>																	
5. <u>Erodium botrys</u>	<u>1</u>	<u>N</u>	<u>FACU</u>																	
6. <u>Erodium cicutarium</u>	<u>1</u>	<u>N</u>	<u>NL</u>																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
Total Cover: <u>103</u>																				
<b>Woody Vine Stratum</b>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
Total Cover: _____																				
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____																		

Remarks: 50% = 51 20% = 20.0

**SOIL**

Sampling Point: 4

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR4/4						Silty loam - no cobbles	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C)    | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Vernal Pools (F9)          |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          |   |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

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

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

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                              | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                            | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                   | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine)         | <input type="checkbox"/> Presence of Reduced Iron (C4)                 | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)    | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                    | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |  | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |  | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

Field Observations:

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

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

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

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Molesworth Creek City/County: Orcutt Creek/Lake Sampling Date: 4-24-14  
 Applicant/Owner: CA State Parks State: CA Sampling Point: 5  
 Investigator(s): Jami Davis Josh Harwayne Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): channel bottom Local relief (concave, convex, none): flat Slope (%): 0  
 Subregion (LRR): LRR C Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Still Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Third year of drought potential waters</u>	

**VEGETATION**

<u>Tree Stratum</u> (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Total Cover: _____				
<u>Herb Stratum</u>				<b>Hydrophytic Vegetation Indicators:</b> ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 <sup>1</sup> ___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: _____				
<u>Woody Vine Stratum</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>

Remarks: Unvegetated

**SOIL**

Sampling Point: 5

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 3/4						Sand/gravel/cobble	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C)    | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Vernal Pools (F9)          |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          |   |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

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

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

Remarks:

Slightly moist

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                              | <input type="checkbox"/> Water Marks (B1) (Riverine)                  |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                            | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                   | <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)    |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    | <input type="checkbox"/> Drainage Patterns (B10)                      |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Dry-Season Water Table (C2)                  |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine)         | <input type="checkbox"/> Presence of Reduced Iron (C4)                 | <input type="checkbox"/> Thin Muck Surface (C7)                       |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)    | <input type="checkbox"/> Crayfish Burrows (C8)                        |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                    | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)    |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |  | <input type="checkbox"/> Shallow Aquitard (D3)                        |
|  |  | <input type="checkbox"/> FAC-Neutral Test (D5)                        |

**Field Observations:**

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

Wetland Hydrology Present? Yes X No \_\_\_\_\_

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

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Molesworth Creek City/County: Clear Creek/Lake Sampling Date: 4-24-14  
 Applicant/Owner: CA State Parks State: CA Sampling Point: U  
 Investigator(s): Jami Davis, Josh Harwayne Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): 1st terrace in channel Local relief (concave, convex, none): Concave Slope (%): 1  
 Subregion (LRR): LRRC Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: SH11 Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Third year of drought</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
4. _____	_____	_____	_____	
Total Cover: _____				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
Total Cover: _____				UPL species _____ x 5 = _____
Total Cover: _____				Column Totals: _____ (A) _____ (B)
Herb Stratum				Prevalence Index = B/A = _____
1. <u>vicia villosa</u>	<u>105</u>	<u>Y</u>	<u>UPL</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 <sup>1</sup> ___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
2. <u>Bromus diandrus</u>	<u>20</u>	<u>Y</u>	<u>NL</u>	
3. <u>Kumex crispus</u>	<u>1</u>	<u>N</u>	<u>FAC</u>	
4. <u>Rhynchospora californica</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>91%</u>				
Woody Vine Stratum				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum <u>5</u>		% Cover of Biotic Crust _____		
Remarks: <u>50% = 45.5%</u> <u>20% = 18.2%</u>				
				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>

**SOIL**

Sampling Point: U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	7.5YR	4/4					Silty loam - no cobble	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)
	<input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

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

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
<b>Primary Indicators (any one indicator is sufficient)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water Marks (B1) (Riverine) <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

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

**Wetland Hydrology Present?** Yes \_\_\_\_\_ No

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

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Midasworth Creek City/County: Clear Creek/Lake Sampling Date: 4-24-14  
 Applicant/Owner: CA State Parks State: CA Sampling Point: 7  
 Investigator(s): Jami Davis, Josh Harway Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): top of bank, out of chan Local relief (concave, convex, none): flat Slope (%): 0  
 Subregion (LRR): LRR C Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: gill loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Third year of drought</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
4. _____	_____	_____	_____	
Total Cover: _____				
<b>Sapling/Shrub Stratum</b>				<b>Prevalence Index worksheet:</b>
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
Total Cover: _____				UPL species _____ x 5 = _____
<b>Herb Stratum</b>				Column Totals: _____ (A) _____ (B)
1. _____	_____	_____	_____	Prevalence Index = B/A = _____
2. <u>Avena fatua</u>	<u>70</u>	<u>Y</u>	<u>NL</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
3. <u>Vicia villosa</u>	<u>20</u>	<u>Y</u>	<u>NL</u>	
4. <u>Centaurea solstitialis</u>	<u>5</u>	<u>N</u>	<u>NL</u>	
5. <u>Bromus nordaceus</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>97%</u>				
<b>Woody Vine Stratum</b>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum <u>5</u> % Cover of Biotic Crust _____				
Remarks: <u>50% = 48.5%</u> <u>20% = 19.4%</u>				

**SOIL**

Sampling Point: 7

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 4/4						loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)
	<input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

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

Remarks:  
 sparse wood

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	<b>Secondary Indicators (2 or more required)</b>
<b>Primary Indicators (any one indicator is sufficient)</b>	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_ (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

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

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Molesworth Creek City/County: Clear Creek/Lake Sampling Date: 4-24-14  
 Applicant/Owner: CA State Parks State: CA Sampling Point: 8  
 Investigator(s): Jami Davis Josh Harway Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): top of bank Local relief (concave, convex, none): flat Slope (%): 0  
 Subregion (LRR): LRRC Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: still loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Third year of drought</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
4. _____	_____	_____	_____	
Total Cover: _____				
<b>Sapling/Shrub Stratum</b>				
1. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Total Cover: _____				
<b>Herb Stratum</b>				
1. <u>Vicia villosa</u>	<u>40</u>	<u>Y</u>	<u>NL</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 <sup>1</sup> ___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
2. <u>Bromus diandrus</u>	<u>30</u>	<u>Y</u>	<u>NL</u>	
3. <u>Bromus hordeaceus</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>95%</u>				
<b>Woody Vine Stratum</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum <u>5</u>		% Cover of Biotic Crust _____		
Remarks: _____				

**SOIL**

Sampling Point: 8

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-17	10YR4/4						loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
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**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

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

Remarks: *sparse cobble*

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators (any one indicator is sufficient)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	<b>Secondary Indicators (2 or more required)</b> <input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
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**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

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

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Molesworth Creek City/County: Clear Creek/Lake Sampling Date: 4/15/14  
 Applicant/Owner: CA State Parks State: CA Sampling Point: 9  
 Investigator(s): Jami Davis Josh Harwayne Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): bottom of channel Local relief (concave, convex, none): flat Slope (%): 0  
 Subregion (LRR): LRR1 Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Still Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Third year of drought potential waters</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Total Cover: _____				
<u>Herb Stratum</u>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: _____				
<u>Woody Vine Stratum</u>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				

**Hydrophytic Vegetation Indicators:**  
 \_\_\_ Dominance Test is >50%  
 \_\_\_ Prevalence Index is ≤3.0<sup>1</sup>  
 \_\_\_ Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No X

Remarks: unvegetated



**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Moresworth Creek City/County: Clear Creek/Lake Sampling Date: 4-25-14  
 Applicant/Owner: CA State Parks State: CA Sampling Point: 10  
 Investigator(s): Jami Davis Josh Harwayne Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): 1st terrace Local relief (concave, convex, none): convex Slope (%): 1  
 Subregion (LRR): LRRC Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Still Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Third year of drought</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
4. _____	_____	_____	_____	
Total Cover: _____				
<u>Sapling/Shrub Stratum</u>				<b>Prevalence Index worksheet:</b>
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
6. _____	_____	_____	_____	UPL species _____ x 5 = _____
7. _____	_____	_____	_____	Column Totals: _____ (A) _____ (B)
8. _____	_____	_____	_____	Prevalence Index = B/A = _____
Total Cover: _____				<b>Hydrophytic Vegetation Indicators:</b>
<u>Herb Stratum</u>				<input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. <u>Leymus triticoides</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.  <b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
2. <u>Vicia sativa</u>	<u>70</u>	<u>Y</u>	<u>NL</u>	
3. <u>Tragopogon sp.</u>	<u>1</u>	<u>N</u>	<u>NL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>80%</u>				
<u>Woody Vine Stratum</u>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum <u>20</u> % Cover of Biotic Crust _____				
Remarks: <u>50% = 43%</u> <u>20% = 17%</u>				

**SOIL**

Sampling Point: 10

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14	10 YR 2/1						loam	
14-20	10 YR 3/1						clayey loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Vernal Pools (F9)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

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

Remarks:  
 moist but not saturated - earthy smell

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
<b>Primary Indicators (any one indicator is sufficient)</b>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Biotic Crust (B12)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	
<input type="checkbox"/> Other (Explain in Remarks)	

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

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

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Molesworth Creek City/County: Clear Creek/Lake Sampling Date: 4-25-14  
 Applicant/Owner: CA State Parks State: CA Sampling Point: 11  
 Investigator(s): Jami Davis Josh Harwayne Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): 1<sup>st</sup> terrace Local relief (concave, convex, none): Convex Slope (%): 1  
 Subregion (LRR): LRRC Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Still Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Third year of drought</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Quercus lobata</u>	<u>50</u>	<u>Y</u>	<u>FACU</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. <u>Populus deltoides</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. <u>Unknown sp</u>	<u>1</u>	<u>N</u>	<u>N/A</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>17%</u> (A/B)
4. _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Total Cover: <u>91</u>				
<b>Sapling/Shrub Stratum</b>				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: _____				
<b>Herb Stratum</b>				
1. <u>Hedera helix</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 <sup>1</sup> ___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
2. <u>Toxicodendron diversilobum</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>40</u>				
<b>Woody Vine Stratum</b>				
1. <u>Hedera hulla</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Toxicodendron diversilobum</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
Total Cover: <u>10</u>				
% Bare Ground in Herb Stratum <u>60</u> % Cover of Biotic Crust _____				
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>				
Remarks: _____				

**SOIL**

Sampling Point: 11

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR2/1						loamy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

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

Remarks:  
*Smells earthy unoxidized roots throughout*

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
<b>Primary Indicators (any one indicator is sufficient)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

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

Remarks:

## **Appendix B: Plant List for Molesworth Channel Project**

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# Molesworth Channel Plant Species List

April 2014

## Channel Bed

Scientific Name	Common Name
<i>Acer negundo</i>	Box elder
<i>Artemisia douglasiana</i>	Mugwort
<i>Carex</i> sp.	Carex
<i>Epilobium</i> sp.	Willow-herb
<i>Juncus patens</i>	Spreading rush
<i>Lolium perenne</i>	Perennial ryegrass
<i>Medicago polymorpha</i>	Bur clover
<i>Piantago lanceolata</i>	English plantain
<i>Polygonum</i> sp.	Knotweed
<i>Populus fremontii</i>	Fremont's cottonwood
<i>Rafinesquia californica</i>	California chicory
<i>Rumex crispus</i>	Curly dock
<i>Salix</i> sp.	Willow
<i>Vicia villosa</i>	Wooly vetch
<i>Xanthium strumarium</i>	Cocklebur

## Upland

Scientific Name	Common Name
<i>Ageratina adenophora</i>	Sticky eupatorium
<i>Agrostis</i> sp.	Bent-grass
<i>Amsinckia menziesii</i>	Harvest fireweed
<i>Asclepias eriocarpa</i>	Milkweed
<i>Avena fatua</i>	Wild oat
<i>Bromus carinatus</i>	California brome
<i>Bromus diandus</i>	Ripgut brome
<i>Bromus hordeaceus</i>	Soft chess
<i>Calystegia</i> sp.	Morning glory
<i>Centaurea solstitialis</i>	Yellow star thistle
<i>Chlorogalum</i> sp.	Soap plant
<i>Clarkia</i> sp.	Clarkia
<i>Claytonia</i> sp.	Miners lettuce
<i>Collinsia heterophylla</i>	Chinese houses
<i>Cynosurus echinatus</i>	Dogtail grass
<i>Dipsacus fullonum</i>	Fuller's teasle
<i>Elymus caput-medusae</i>	Medusa Head
<i>Elymus elymoides</i>	Squirreltail
<i>Elymus glaucus</i>	Western ryegrass
<i>Erodium botrys</i>	Long-beak filaree
<i>Erodium cicutarium</i>	Red-stem filaree

# Molesworth Channel Plant Species List

## April 2014

### Upland (Continued)

Scientific Name	Common Name
<i>Eschscholzia californica</i>	California poppy
<i>Filago californica</i>	California filago
<i>Galium sp.</i>	Bedstraw
<i>Hedera helix</i>	English ivy
<i>Hirschfeldia incana</i>	Summer mustard
<i>Hordeum murinum ssp. leporinum</i>	Barnyard foxtail
<i>Lactuca serriola</i>	Prickly lettuce
<i>Lamium amplexicaule</i>	Giraffe head
<i>Lotus sp.</i>	Lotus
<i>Lupinus bicolor</i>	Minature lupine
<i>Lupinus nanus</i>	Sky lupine
<i>Matricaria discoidea</i>	Pineapple weed / Chamomile
<i>Pinus sabiniana</i>	Gray Pine
<i>Poa bulbosa</i>	Bulbous bluegrass
<i>Quercus lobata</i>	Valley oak
<i>Rubus armeniacus</i>	Himalayan blackberry
<i>Rumex acetosella</i>	Sheep sorrel
<i>Scandix pecten-veneris</i>	Venus' needle
<i>Silybum marianum</i>	Milk thistle
<i>Toxicodendron diversilobum</i>	Poison oak
<i>Tragopogon sp.</i>	Oyster plant
<i>Vicia sativa</i>	Spring vetch
<i>Vicia villosa</i>	Wooly vetch
Unknown Asteraceae	
Unknown Poaceae	
Unknown Roseaceae	

## **Appendix C: Wetland and Waters Delineation Map**

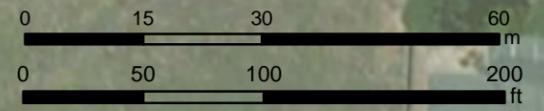
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 Limit of Disturbance  
 Potential Waters of the U.S. (0.25 acre / 1,175.9 linear feet)  
 Sampling Points



Lakeside Drive

Bay Street



## Potentially Jurisdictional Waters of the U.S.



**Denise Duffy and Associates, Inc.**  
 Planning and Environmental Consulting

Date	08-14-2014
Scale	1 in = 0 mi

## **Appendix D: Site Photos**

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Photo 1. Molesworth Channel looking downstream from pipe crossing.



Photo 2. Molesworth Channel looking downstream from near the center of the project site.



Photo 3. Molesworth Channel looking downstream at the riparian habitat area.



Photo 4. Molesworth Channel looking upstream from edge of the riparian habitat area.



## Site Photos

April 2014

Resource Protection through Erosion Stabilization Project  
Molesworth Channel Anderson Marsh State Historic Park



Photo 1. Project site outside of the Molesworth Channel looking east.



Photo 2. Project site outside of the Molesworth Channel looking west.



## Site Photos

April 2014

Resource Protection through Erosion Stabilization Project  
Molesworth Channel Anderson Marsh State Historic Park