

**INITIAL STUDY  
NEGATIVE DECLARATION**

**Schwan Lake Trail Accessibility Improvements  
Twin Lakes State Beach**



**April 2016**



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

**Department Mission Statement:** *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.*

## NEGATIVE DECLARATION

**PROJECT:** Schwan Lake Trail Accessibility Improvements

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

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

### **Hardcopy to review on-site**

California Department of Parks and Recreation  
Santa Cruz District  
303 Big Trees Park Road  
Felton, CA 95018

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

### Santa Cruz Public Library

Live Oak Branch  
2380 Portola Drive  
Santa Cruz, California 95062-4203

Branciforte  
230 Gault Street  
Santa Cruz, California 95062-2599

### **Downloadable Electronic copy**

[California Department of Parks and Recreation, CEQA Website](#)

### **Project Description:**

The California Department of Parks and Recreation proposes to upgrade approximately 2500 linear feet of the existing Schwan Lake Trail that originates at the Simpkins Swim Center to comply with the Americans with Disabilities Act and the Department's "ADA Transition Plan". Work would construct 800 linear feet of new rerouted trail and obliterate then restore 600 feet of highly erodible trail. The final length of the trail would be 2500 feet or .5 miles. A detailed project description is included in Chapter 2, Project Description.

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:

Teri Crawford  
Environmental Coordinator  
California Department of Parks and Recreation  
Santa Cruz District  
303 Big Trees Park Road  
Felton, CA 95018  
Fax: (831)335-8996  
Email: [CEQANSC@parks.ca.gov](mailto:CEQANSC@parks.ca.gov)  
Subject line: Schwan Lake Trail Accessibility

Submissions must be in writing and postmarked or received by fax or email no later than May 23, 2016. 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. DPR, as lead agency, also confirms that the project requirements detailed as part of the project description in these documents are feasible and will be implemented as stated in the Negative Declaration.

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Brad Michalk  
Environmental Coordinator  
Northern Service Center

Date

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Brian Dewey  
Assistant Deputy Director  
Acquisition and Development Division

Date

## TABLE OF CONTENTS

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Table of Contents .....	iii
Chapter 1 – Introduction .....	2
1.1 Introduction and Regulatory Guidance .....	2
1.2 Lead Agency .....	2
1.3 Purpose and Document Organization .....	2
1.4 Summary of Findings .....	3
Chapter 2 – Project Description .....	5
2.1 Introduction .....	5
2.2 Project Location .....	5
2.3 Background and Need for the Project .....	5
2.4 Project Objectives .....	6
2.5 Project Description .....	6
2.7 Project Implementation .....	12
2.9 Consistency with Local Plans and Policies .....	13
2.10 Discretionary Approvals .....	14
2.11 Related Projects.....	14
Chapter 3 – Environmental Checklist .....	15
CULTURAL BACKGROUND .....	38
Native American Consultation .....	44
Chapter 4 – Mandatory Findings of Significance .....	86
Chapter 5 – References .....	88
Chapter 6 – Report Preparation .....	95
Appendix A – Maps & Plans.....	96
Appendix B – Acronyms .....	97
Appendix C – Glossary.....	98

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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 Schwan Lake Trail Accessibility Improvements Project (Schwan Lake ADA Trail project) at Twin Lakes State Beach (TLSB), Santa Cruz County, 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 revisions in the project plans or proposals made by or agreed to by the applicant mitigate the potentially significant effects to a less-than-significant level, a Mitigated Negative Declaration (MND) may be prepared instead of an EIR [CEQA Guidelines §15070(b)]. 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 contact person for the lead agency is:

Steve Nawrath  
Project Manager  
California Department of Parks and Recreation  
Northern Service Center / ADA Unit  
One Capitol Mall, Suite 410  
Sacramento, California 95814  
Phone: 916-445-8962

### 1.3 Purpose and Document Organization

The purpose of this document is to evaluate the potential environmental effects of the proposed Schwan Lake Trail Accessibility Improvements project. Design measures or

Project Requirements have been incorporated into the project description to eliminate any potentially significant adverse impacts or reduce 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 Discussion*

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.

*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 6 - Summary of Monitoring*

This chapter describes the monitoring that will be used to ensure that all project requirements are implemented as planned during project construction.

*Chapter 7 - References*

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

*Chapter 8 - 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 Schwan Lake Trail Accessibility Improvements Project would result in less than significant impacts for the following issues: aesthetics, agricultural resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation/traffic, and utilities and service systems, and cumulative impacts.

In accordance with §15070(a) of the CEQA Guidelines, a ND shall be prepared if the initial study shows that there is no substantial evidence that the project may 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, after the incorporation of project requirements, 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.

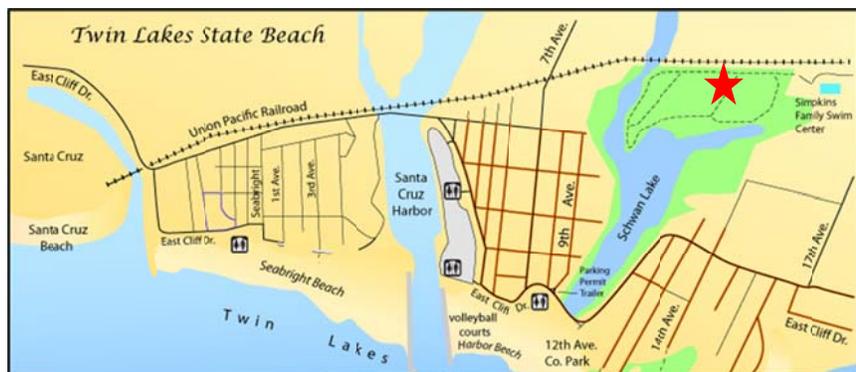
## CHAPTER 2 – PROJECT DESCRIPTION

### 2.1 INTRODUCTION

This Initial Study/ Negative Declaration (IS/IND) has been prepared by the California Department of Parks and Recreation (DPR, State Parks or Department) to evaluate the potential environmental effects of the proposed Schwan Lake Trail Accessibility Improvement Project (Project) at Twin Lakes State Beach, located in Santa Cruz County, California. The proposed project would improve an existing trail to provide an Americans with Disabilities Act (ADA) compliant trail.

### 2.2 PROJECT LOCATION

Twin Lakes State Beach located adjacent to the City of Santa Cruz (a major recreation destination in California) in the Live Oak neighborhood of Santa Cruz County and features approximately 6000 lineal



feet of ocean frontage at three separate beaches. Besides the beaches, the 91.6 acre unit includes San Lorenzo Point, Schwan's Lagoon (a 23.5 acre freshwater lake) and Bonita Lagoon (about 1.5 acres). Schwan Lake State Beach is located at 2855 East Cliff Drive ("36.962394", "-121.996922"), within a mile of the Santa Cruz Beach and Boardwalk. Trail access and parking is available behind the Simpkins Family Swim Center, just north of Schwan Lake.

### 2.3 BACKGROUND AND NEED FOR THE PROJECT

The DPR is responsible for the maintenance and management of over 1,500 trails and pedestrian routes throughout the most biologically diverse state in the nation. State Park trails provide a wide variety of experiences to visitors, from outstanding vistas, including opportunities for wildlife viewing, to access to significant natural and cultural features in a range of environmental settings. These routes are an important component of the numerous programs and facilities that the Department is responsible to interpret, maintain, and protect.

All programs, services, and activities offered by a public entity must be accessible to persons with disabilities. Since hiking is considered one of the major recreational

activities offered by DPR, the current trail system must include trail opportunities for visitors with disabilities.

Since 2005, DPR has been operating under a federal consent decree resulting from a class action lawsuit. In settling *Tucker, et al. v. State of California Department of Parks and Recreation et al.*, the Department agreed to remove architectural and programmatic access barriers and construct accessible trails following a court approved timeline. To date, California State Parks has completed hundreds of barrier removal and accessible trail projects statewide.

Twin Lakes State Beach is designated as a Level 2<sup>1</sup> park requiring 1.5 miles of accessible trail. The park unit size, topography and availability of land (much of the park is attributed to the lake) allows approximately .5 miles of trail improvements. While this would not fulfill the exact letter of the consent decree, the Department would provide the most length of trail possible in a coastal location under resource constraints and continue to scope additional ADA-compliant trail projects to meet the consent decree requirements.

Without the proposed project, State Parks would be unable to provide ADA-compliant trail access in a coastal area that is also a major recreational destination in California and would be in violation of the consent decree. More importantly, park users with mobility challenges would not have the opportunity for a peaceful, pleasant, easily accessible trail experience.

## **2.4 PROJECT OBJECTIVES**

The proposed project would improve the accessibility of .5 miles of existing multi-use trail at Schwan Lake to provide recreational opportunities to persons with mobility impairments and comply with the consent decree resulting from *Tucker, et al. v. State of California Department of Parks and Recreation et al.*

The proposed project is consistent with the mission of State Parks “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 California Department of Parks and Recreation proposes to upgrade approximately 2500 linear feet of the existing Schwan Lake Trail that originates at the Simpkins Swim

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<sup>1</sup> At Level 2 parks that currently have two or more trails, the Department will provide at least two accessible trails as follows: (a) one accessible trail will be at least one mile long, and (b) one additional accessible trail will be at least .5 miles long.

Center to comply with the Americans with Disabilities Act and the Department's "ADA Transition Plan". Specific work would:

- Construct a new concrete ADA-compliant van parking space, signage and striping at the existing trailhead
- Relocate the entrance gate to accommodate parking and accessibility
- Reconstruct approximately 600 feet of existing trail/road with an asphalt-base (AB) overlay to a crown configuration
- Reconstruct approximately 280 feet of existing trail/road to an out-slope configuration
- Construct and reroute approximately 400 ft of new 4 foot wide trail to the bridge approach
- Construct two new fiberglass stringer bridges (70' and 40') over the drainage with concrete abutments. Fiberglass bridges can span the lengths necessary 70' and 40' (wood can't), they can be assembled on-site by trail crew labor and they are corrosion resistant in the salt air (longer life span).
- Reconstruct approximately 775 feet of existing trail/road to ADA compliant grade standards (5% maximum cross slope)
- Construct approximately 80 feet of multi-tier rock wall to meet linear grade requirements, including minor cut and fill of the existing trailhead
- Construct approximately 120 feet of new 8' wide connector road/trail
- Obliterate, recontour and revegetate approximately 6000 square feet of highly degraded and eroding access road located at the peninsula (upland) point.
- Construct approximately 350' of new 4' wide trail to the end of the peninsula for viewing opportunities
- Construct a new 12' diameter overlook with a redwood bench at the terminus of the new trail
- Construct approximately 5 steps from proposed overlook to the top of the Schwan Lake embankment to prevent resource and erosional impacts associated with visitor access to the lake edge.
- Construct an approximately 28-step cable stair system from the lake embankment to the lake edge to prevent resource and erosional impacts associated with visitor access to the lake edge
- Remove 6 live oak trees with diameters of no more than 10"
- Construct an approximately 16' x14' picnic pad with a wood picnic table outside the drip-line of the adjacent heritage oak tree; and

## 2.6 PROJECT REQUIREMENTS

Under CEQA, 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 Standard Project Requirements and a list of Specific Project Requirements that are included in project design to reduce impacts to sensitive resources.

Standard Project Requirements 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 below). 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.

Specific Project Requirements are written for, and applied to, projects based on specific actions unique to a project and/or area that are necessary to complete the project while protecting resources. For example, Morro shoulderband snail (*Helminthoglypta walkeriana*) is endemic to San Luis Obispo County so could only occur in projects within this geographic area. Therefore, the project requirement would be included in the project description that would address this specific species and would not be included in a project located in Sacramento County.

The following list of Project Requirements would be implemented during the Schwann Lake Trail Accessibility Improvements Project:

**Table 2.6.1 Project Requirements**

<b>Air Quality</b>
<u>AIR1: Clean Air</u> <ul style="list-style-type: none"><li>All active construction areas will be watered at least twice daily during, dry, dusty conditions.</li></ul>

- All trucks hauling soil, sand or other loose materials on public roads will be covered or required to maintain at least two feet of freeboard.
- All equipment engines will be maintained in good condition, improper tune (according to manufacturer's specifications), and in compliance with all State and federal requirements.
- Excavation and grading activities will be suspended when sustained winds exceed 25 mph, instantaneous gusts exceed 35 mph, or dust from construction might obscure driver visibility on public roads.
- Earth or other material that has been transported onto paved streets by trucks, construction equipment, erosion, or other project-related activity will be promptly removed.

## **Biological Resources**

### Bio 1a: Special Status Plant Species

1. Surveys for special status plant species, including robust spineflower, white-rayed pentachaeta, Santa Cruz clover, and San Francisco popcorn-flower, will be conducted within the project area by a DPR-approved biologist during the appropriate blooming periods or when identity can be confirmed. Occurrences of these species within the project area will be flagged or otherwise marked identified onsite. Occurrences of these species will be avoided and protected from construction activities.

### BIO 1b: Raptors and Migratory Birds

- If construction-related activities are conducted between February 1 through and August 31 then focused surveys for nesting migratory bird and raptor species will be conducted by a DPR-approved biologist before construction activities occur in these months to identify active nests.
  1. Surveys for active raptor nests will be conducted within a 500-foot radius of the project area no more than 7 days prior to the beginning of construction. If nesting raptors are found, no construction activities will occur within a 500-foot radius of the nest tree until the young have fledged and the young will no longer be impacted by project activities, as determined by the DPR-approved biologist.
  2. Surveys for active migratory bird nests will be conducted within a 150-foot radius of the project no more than 7 days prior to the beginning of construction. If active nests are located, no construction activities will occur within a 150-foot radius of the nest tree until the young have fledged and the young will no longer be impacted by project activities, as determined by the DPR-approved biologist.

### Bio 2: Sudden Oak Death

- All project activities that could spread *Phytophthora ramorum* to new locations will be subject to Best Management Practices (including proper sanitation measures)

developed by the California Oak Mortality Task Force and available online at <http://www.suddenoakdeath.org/index.html>.  
<http://www.suddenoakdeath.org/diagnosis-and-management/best-management-practices/>

## **Cultural Resources**

### CR1: Inadvertent Finds

- In the event that previously unknown cultural resources (including but not limited to dark soil containing shellfish, bone, flake stone, groundstone, or deposits of historic trash) are encountered during project work by anyone, the state representative will put work on hold at that specific location and contractors will be redirected to other areas (tasks). A DPR-qualified archaeologist will record and evaluate the find and work with the state representative to implement avoidance, preservation, or recovery measures as appropriate to any work resuming at that specific location.
- In the event that significant cultural resources are found in the project location, a qualified historian and/or archaeologist will monitor all subsurface work including trenching, grading, and excavations in that area from that point forward to ensure avoidance of significant cultural material. .

### CR2: Archaeological Monitoring

- A DPR archaeologist may monitor ground-disturbing activities in areas identified with a moderate to high degree of archaeological sensitivity. These locations will be coordinated with the project and construction managers. Other archaeological monitoring needs are at the discretion of the DPR archaeologist

### CR3: Human Remains

- In the event that human remains are discovered, work will cease immediately in the area of the find and the project manager will notify the appropriate DPR personnel. Any human remains and/or funerary objects will be left in place or returned to the point of discovery and covered with soil. The DPR Sector Superintendent (or authorized representative) will notify the County Coroner, in accordance with §7050.5 of the California Health and Safety Code, and the Native American Heritage Commission (or Tribal Representative). If a Native American monitor is on-site at the time of the discovery, the monitor will be responsible for notifying the appropriate Native American Authorities.

## **Geology and Soils**

### GEO1: Seismic Stability

- Prior to finalizing design plans, a geotechnical site investigation will be conducted to determine soil type, depth to groundwater, liquefaction potential, presence of undesirable expansive soils, and potential for landslides. If it is not feasible to conduct an investigation prior to the start of construction, the worst- case scenario for seismic impact would be assumed (liquefaction possible, expansive clay soils present) and designs adjusted accordingly.

- Structures and foundations proposed as part of this project would conform to the earthquake design requirements in Chapter 16, Division IV of the most recent accepted edition of the California Building Code (CBC).

## **Hazards and Hazardous Substances**

### HH1: Spill Prevention

- Prior to the start of construction, all equipment will be cleaned before entering the project site. During the project, equipment will be cleaned and repaired (other than emergency repairs) outside the project site boundaries. All contaminated 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.
- Prior to the start of construction, all equipment will be inspected for leaks and regularly inspected thereafter until removed from the project site.
- Prior to the start of construction, a Spill Prevention and Response Plan (SPRP) will be prepared to provide protection to on-site workers, the public, and the environment from accidental leaks or spills of vehicle fluids or other potential contaminants. This plan will include but not be limited to the following:
  - ✓ A map that delineates construction staging areas, and where refueling, lubrication, and maintenance of equipment will occur.
  - ✓ A list of items required in an on-site spill kit that will be maintained throughout the life of the project.
  - ✓ Procedures for the proper storage, use, and disposal of any solvents or other chemicals used during the project.
  - ✓ Identification of lawfully permitted or authorized disposal destinations.

### HH 2: Fire Safety

- A Fire Safety Plan will be developed by a DPR approved forester, prior to the start of construction.
- Spark arrestors or turbo-charging (which eliminates sparks in exhaust) and fire extinguishers will be required for all heavy equipment.
- Construction crews will be required to park vehicles away from flammable material, such as dry grass or brush. At the end of each workday, heavy equipment will be parked over asphalt, or concrete to reduce the chance of fire.

## **Hydrology and Water Quality**

### Hydro 1: Erosion and Sediment Control and Pollution Prevention

- Prior to the start of construction, DPR and/or its Contractor will prepare a Stormwater Soil Loss Pollution Prevention Plan (SWSLPPP) to cover soil loss resulting from storm water run-off and/or wind erosion, sedimentation and/or of dust/particulate matter and air pollution during clearing, grading, excavation, stockpiling and reconstruction of existing facilities involving removal and replacement. BMPs include, but are not limited

to: construction activity scheduling, erosion and sediment control to protect slopes and drainage courses, mulching or hydro-seeding to stabilize disturbed soils, dust control, stockpile management and management of washout areas.

### Noise

- Construction activities will generally be limited to the daylight hours, Monday – Friday; however, weekend work may be implemented to accelerate construction or address emergency or unforeseen circumstances. If weekend work is necessary, no work will occur on those days before 8:00 a.m. or after 6 p.m.
- Internal combustion engines used for any purpose at the job site will be equipped with a muffler of a type recommended by the manufacturer. Equipment and trucks used for construction will utilize the best available noise control techniques (e.g. engine enclosures, acoustically-attenuating shields, or shrouds, intake silencers, ducts, etc.) whenever feasible and necessary.

### Recreation

#### R1: News Release

- Prior to project implementation, the project manager will prepare and distribute a news release to alert users of the trail closure. The news release will include, but not be limited to reason for closure, closure dates, alternate trails and contact information.

#### R2: Temporary Trail Closure Signage

- Prior to the start of project implementation, the Trail Crew will place a professionally printed, wood, metal or similar material sign at trailhead(s) to alert hikers of the trail closure, length of duration and alternate trails

## 2.7 PROJECT IMPLEMENTATION

The proposed project would be constructed by the Santa Cruz District Trail Crew. The work would be implemented with both mechanized and manual equipment, including, but not limited to: skid steers, backhoe loaders, excavators, toters, rollers, assorted trail building hand tools and vibra-plates. Designers estimate construction to occur over two seasons, 3-5 months per season, likely from August – January. Equipment and material staging is proposed at the parking area and trailhead. During construction, partial closures of the day use areas would be required

Best Management Practices (BMPs) would be incorporated into this project design to ensure that the natural and cultural 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 were obtained from the *California Stormwater Quality Association (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. BMPs would be used after construction to stabilize the site and minimize erosion. The Department of Parks and Recreation has consistently referenced CSQA BMPs and has identified them as an acceptable standard for use in all State Parks.

## 2.8 Visitation at Twin Lakes State Beach

This project would improve specific segments of two existing trails to comply with the Americans with Disabilities Act; however, is not expected to increase visitation to Twin Lakes State Beach, which includes Schwann Lake.

**Table 2.8.1. Annual Visitor Attendance at Twin Lakes State Beach.**

<b>Fiscal Year</b>	<b>Free Day Use</b>	<b>Total Attendance</b>
2003-2004	690,799	690,799
2004-2005	721,519	721,519
2005-2006	504,506	504,506
2006-2007	496,508	496,556
2007-2008	496,556	496,556
2008-2009	500,031	500,031
2009-2010	524,801	524,801
2010-2011	508,065	508,065
2011-2012	537,010	537,010
2012-2013	544,173	544,173
2013-2014	540,352	540,352
Total Attendance	6,064,320	6,064,320
Average Annual Attendance	551,301	551,301

## 2.9 CONSISTENCY WITH LOCAL PLANS AND POLICIES

The project is consistent with the DPR mission and its management directives aimed at providing ADA-compliant access to trails in parks and preserving the state’s extraordinary biological diversity. The proposed project is consistent with local plans and policies currently in effect

## **2.10 DISCRETIONARY APPROVALS**

California State Parks will perform all necessary reviews and acquire all permits necessary prior to implementing any project component that could require regulatory review.

California State Parks retains approval authority for the proposed Schwan Lake Trail Accessibility Improvements Project at Twin Lakes State Beach. The project meets guidelines presented in the:

1. Twin Lakes State Beach General Plan (1988): 1) to develop public access (on the upland) to the edge of the lagoon for nature observation and 2) to provide easy access through the upland for nature walks.
2. Trail Plan for Accessibility in California State Parks (2001): continue to evaluate all trail projects for the highest level of accessibility possible
3. California Recreational Trails Plan (2002): provide trail users with easily accessible trails and accurate information regarding trail locations and conditions.

Additionally, this project fulfills the requirements of the 2005 consent decree.

The project requires additional approval or permits from the following government agencies:

- Santa Cruz County Coastal Commission
- California Department of Fish and Wildlife

California State Parks will acquire all necessary reviews and permits prior to implementing any project components requiring regulatory review.

## **2.11 RELATED PROJECTS**

To date, this park unit does not have deferred maintenance, capital outlay or additional ADA project scheduled. Districts often have on-going maintenance projects scheduled at park units throughout the year; however, none would conflict with this trail project or contribute to cumulative impacts.

## CHAPTER 3 – ENVIRONMENTAL CHECKLIST

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### PROJECT INFORMATION

- |    |  |   |
|----|--|---|
| 1. | Project Title:                               | Schwan Lake Trail Accessibility Improvements  |
| 2. | Lead Agency Name & Address:                  | California Department of Parks & Recreation   |
| 3. | Contact Person & Phone Number                | Steve Nawrath<br>916.445.8962   |
| 4. | Project Location:                            | Twin Lakes State Beach, Schwan Lake Upland  |
| 5. | Project Sponsor & Address:                   | California Department of Parks & Recreation<br>Northern Service Center<br>One Capitol Mall, Suite 410<br>Sacramento, California 95814   |
| 6. | General Plan Designation:                    | State Park, 1988  |
| 7. | Description of Project:                      | The California Department of Parks and Recreation proposes to upgrade approximately 2500 linear feet of the existing Schwan Lake Trail that originates at the Simpkins Swim Center to comply with the Americans with Disabilities Act and the Department's "ADA Transition Plan". Work would construct 800 linear feet of new rerouted trail and obliterate then restore 600 feet of highly erodible trail. The final length of the trail would be 2500 feet or .5 miles. |
| 8. | Surrounding Land Use & Setting:              | Refer to Chapter 3 of this Document (Section IX, Land Use Planning)   |
| 9. | Approval Required from Other Public Agencies | Refer to Chapter 2 of this document (Section 2.9 Discretionary Approvals)   |

**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 checked="" type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources                 | <input checked="" type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Hazards & 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 checked="" type="checkbox"/> Recreation              | <input type="checkbox"/> Transportation/Traffic   |
| <input type="checkbox"/> Utilities & Service Systems     | <input type="checkbox"/> Mandatory Findings of Significance | <input checked="" type="checkbox"/> None          |

**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.

Brad Michalk  
Environmental Coordinator

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 ti 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 EIR (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



#### **Twin Lakes State Beach**

Located on the Central California coast within Santa Cruz County and adjacent to the City of Santa Cruz, the 91.6 acre Twin Lakes State Beach (includes Seabright State Beach and Schwan Lake) is one of the most popular family-friendly beaches to visit with good waves, a view of the lighthouse, volleyball and a mile of sandy shoreline for swimming, picnicking and sunbathing. The long distance views (scenic vistas) are stunning. Beyond the waves, visitors might

see harbor seals, sea lions, dolphins, sea otters, and whales.

#### **Schwan Lake Upland**

Just across East Cliff Drive, lies Schwan Lake with 14 acres of upland property, including: 1.1 miles of stress-free, dirt-path hiking trails and an abundance of wildlife and a 23.5 acre freshwater lake. While hiking, visitors could see giant oaks, groves of eucalyptus, and dark mixed forest or could wander through large meadows, hear the calls of songbirds and seabirds, and look out toward Twin Lakes State Beach and the ocean.

#### **State Scenic Highway**

California's Scenic Highway Program was created by the Legislature in 1963 to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment.



State Highways 1, 9, 17, 35, 129 and 152 within Santa Cruz County are eligible for listing as State Scenic Highways; however, none are officially designated. The status of a

proposed state scenic highway changes from eligible to officially designated when the local governing body applies to Caltrans for scenic highway approval, adopts a Corridor Protection Program, and receives notification that the highway has been officially designated a Scenic Highway.

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
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 type="checkbox"/>	<input checked="" type="checkbox"/>

**CRITERIA FOR DETERMINING SIGNIFICANCE**

The analysis of determining the significance of impacts of the Proposed Action to Aesthetics is based on criteria **I a – d**, described in the environmental checklist above.

**DISCUSSION**

- a) While the long distance views, or scenic vistas, at Twin Lakes State Beach would be considered stunning; the views with in the upland area, while still remarkable would be of a shorter distance and less notable. The proposed project occurs within the Schwan Lake upland area; therefore, a scenic vista would not be adversely affected. No impact.
- b) As stated in the environmental setting above, the highways in the county are eligible for scenic designation, but have not been designated. The proposed project would not substantially damage scenic resources. No impact.
- c) During project implementation, the staging area and construction areas could be considered degraded with the presence of construction equipment, personnel, and trail materials; however, these disturbances would be considered temporary and site

conditions would be returned to existing or better conditions at project's end. Less than significant.

- d) Neither lighting nor materials that could create glare are components of this proposed project. No impact.

## II AGRICULTURAL and FOREST RESOURCES

### ENVIRONMENTAL SETTING

Twin Lakes State Beach consists of high value beach and upland resources, is located within Santa Cruz County in an area of mixed commercial and residential uses. Santa Cruz County requires a 200 foot buffer of open space between prime agricultural/timber lands and residential uses.

The Farmland Mapping and Monitoring Program (FMMP) was established in 1982 by the state of California in response to a critical need for assessing the location, quality, and quantity of agricultural lands and conversion of these lands over time. The goal of the FMMP is to provide consistent and impartial data to decision makers for use in assessing present status, reviewing trends, and planning for the future of California's agricultural land resources (California Department of Conservation, 2007).

The California Land Conservation Act, also known as the Williamson Act, was adopted in 1965. This voluntary program provides a tax incentive to owners of agricultural properties who agree to maintain their land in agricultural preserves for agricultural use. The purpose of the Williamson Act is to encourage participating property owners to continue to farm their land, and to prevent the premature conversion of farmland to urban uses. The Williamson Act applies to both prime and non-prime agricultural lands.

The Legislature declared that "forest resources and timberlands of the state are among the most valuable of the natural resources of the state and that such resources furnish high-quality timber, recreational opportunities, and aesthetic enjoyment while providing watershed protection and maintaining fisheries and wildlife." Forest resources also act to sequester greenhouse gas emissions.

Commercial timber lands are afforded protection through the state's Forest Taxation Reform Act of 1976, which mandates the creation of timberland preserve zones (TPZ) to restrict and protect commercial timber resources. A TPZ is a 10-year restriction on the use of land, and will replace the use of agricultural preserves (Williamson Act contracts) on timberland.

Classified as a State Beach in 1988, Twin Lakes State Beach consists of approximately 96.1 acres of beach, upland and freshwater lake; it does not support any commercial agricultural operations or farmland.

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project*:				
a) Convert Prime Farmland, Unique	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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?

- |   |                          |                          |                          |                                     |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 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 §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g))?   | <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), prepared by the California Department of Conservation as an optional model for use in assessing impacts on agricultural and farmland.

**DISCUSSION**

- a) – c) As stated above, Twin Lakes State Beach lacks any ongoing commercial development of agricultural resources within park boundaries. Prime farmland, Unique Farmland and farmland of Statewide Importance will not be converted to non-agricultural use. No aspect of the proposed project would conflict with existing zoning for agricultural use, a Williamson Act contract nor would Farmland be converted to non-agricultural use No impact.
- d) & e) While the upland portion of Twin Lakes State Beach could be considered oak forest, implementation of the proposed project would not result in the loss of forest land nor would the proposed project result in the conversion of forest land to a non-forest use. Additionally, no other changes (GHG emissions, recreational opportunities, aesthetics or watershed protection) of the proposed project would result in the conversion of Farmland to non-agricultural use of convert forest land to non-forest land. No impact.

### III AIR QUALITY

#### ENVIRONMENTAL SETTING

Twin Lakes State Beach is located just outside the City of Santa Cruz boundaries on the Pacific shore; Schwan lake uplands, the proposed project site, is located on the east side of East Cliff Drive within the oak forest habitat.

**Climate** for the Monterey Unified Air Pollution District consists of the counties of

Santa Cruz, San Benito, and Monterey and covers an area

of 5,159 square miles. Topography and meteorology heavily influence air quality. In the project vicinity, the northwest sector of the basin is dominated by the Santa Cruz Mountains. In Santa Cruz County, coastal mountains exert a strong influence on atmospheric circulation, which results in generally good air quality.

**EPA Region IX:** Serves Arizona, California, Hawaii, Nevada, Pacific Islands and 148 Tribal Nations. The EPA sets national standards that states and tribes enforce through their own regulations.

**Air Basin:** North Central Coast Air Basin is comprised of a single air district, the Monterey Bay Unified APCD, and consists of Santa Cruz, San Benito, and Monterey Counties. Santa Cruz is located in the northwest sector of the Air basin.

**Clean Air Act** requires EPA to set Ambient Air Quality Standards<sup>2</sup> for six common air pollutants. These commonly found air pollutants (also known as "criteria pollutants") are found all over the United States. They are particle pollution (often referred to as particulate matter), ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead. These pollutants can harm your health and the environment, and cause property damage. Of the six pollutants, particle pollution and ground-level ozone are the



Twin Lakes State Beach

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<sup>2</sup> Ambient air quality standards (AAQS) define clean air, and are established to protect even the most sensitive individuals in our communities. An air quality standard defines the maximum amount of a pollutant that can be present in outdoor air without harm to the public's health. Both the Air Resources Board (ARB) and the U.S. Environmental Protection Agency (U.S. EPA) are authorized to set ambient air quality standards

most widespread health threats. EPA calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria (science-based guidelines) for setting permissible levels.

Health-based ambient air quality standards set by the California Air Resources Board (ARB) identify outdoor pollutant levels that are considered safe for the public, including those most at risk of adverse effects with exposure to air pollution, such as children, the elderly, and people who are active outdoors. The ARB has set standards for eight "traditional" pollutants, such as ozone and particulate matter. In addition to setting standards, the ARB identifies other air pollutants as toxic air contaminants (toxics) - pollutants that may cause serious effects with long-term exposure, such as cancer, when exposure level is low. Both traditional pollutants and toxic air contaminants are measured statewide to assess programs for cleaning the air. The ARB works with local air pollution control districts to reduce air pollution from all sources.

**Monterey Bay Unified Air Pollution Control District** :The District is responsible for air monitoring, permitting, enforcement, long-range air quality planning, regulatory development, education and public information activities related to air pollution, as required by the California Clean Air Act and Amendments (HSC Section 40910 et seq.) and the Federal Clean Air Act and Amendments (42 U.S.C. Section 7401 et seq.). The California Clean Air Act (CCAA) requires attainment of state ambient air quality standards by the earliest practicable date. For air districts in violation of the state ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide standards, attainment plans were required by July 1991. The Monterey Bay Unified Air Pollution Control District (District) was required to develop an attainment plan to address ozone violations. The plan has been revised 6 times since 1991

### **Criteria Pollutants**

Criteria air pollutants include the six most common air pollutants in the U.S.: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide. Congress has focused regulatory attention on these six pollutants because they endanger public health and the environment, are widespread throughout the U.S., and come from a variety of sources. Criteria air pollutants are responsible for many adverse effects on human health, causing thousands of cases of premature mortality and tens of thousands of emergency room visits annually. They also cause acid rain and can significantly harm ecosystems and the built environment.

EPA's criteria air pollutant emissions inventory indicates that releases of all criteria air pollutants except nitrogen oxides have been in decline since the passage of the 1970 Clean Air Act. Overall air quality across the country has improved significantly since the 1980s. These improvements, however, have not eliminated air quality problems, and

major efforts to control pollution sources are still required to ensure everyone breathes air that meets Clean Air Act standards.

### **Health Effects**

Exposure to criteria pollutants is associated with numerous effects on human health, including increased respiratory symptoms, hospitalization for heart or lung diseases, and death.

### **State Area Designations**

The Air Resources Board (ARB or Board) has established State ambient air quality standards (State standards) for ozone, suspended particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates, lead, hydrogen sulfide, and visibility reducing particles to identify outdoor pollutant levels considered safe for the public. After State standards are established, State law requires ARB to designate each area as attainment, nonattainment, or unclassified for each State standard. The area designations, which are based on the most recent available data, indicate the healthfulness of air quality throughout the State.

There are three basic designation categories and one sub-category for State Area Designations.

- **Attainment** - the category given to an area with no violations<sup>3</sup> in the last three years.
- **Nonattainment** - the category for an area has one or more violations within the last three years.
- **Nonattainment-Transitional** - a subcategory of nonattainment. For ozone, there must be three or fewer exceedances in the last year.
- **Unclassified** - the category given to an area with insufficient data.

### **National Designation Categories**

In addition to State standards, the Federal Clean Air Act requires the United States Environmental Protection Agency (U.S. EPA) to set national ambient air quality standards for: Ozone, Particulate Matter, Carbon Monoxide, Nitrogen Oxides, Sulfur Dioxide and Lead

- **Attainment:** status of any area that meets the national primary or secondary ambient air quality standard for the pollutant.

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<sup>3</sup> Exceedance versus Violation

**Exceedance** - a concentration level higher than the State standard. Some exceedances may be excluded if determined to be caused by an exceptional event, such as a wildfire or a dust storm. Not all exceedances are violations.

**Violation** - a concentration level higher than the State standard which is not determined to be caused by an exceptional event.

- **Nonattainment:** status of any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet the standard) the national primary or secondary ambient air quality standard for the pollutant.
- **Unclassifiable:** status of any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

**Table 3.3.1. North Central Coast Air Basin Attainment Status**

<b>Pollutant</b>	<b>Averaging Time</b>	<b>State Status*</b>	<b>National Status**</b>
Inhalable particulate matter (PM <sub>10</sub> )	24-hr Annual	Non-Attainment	Unclassified
Fine particulate matter (PM <sub>2.5</sub> )	24-hr Annual	Attainment	Unclassified/Attainment
Ozone	8 hr.	Non-Attainment	Unclassified/Attainment
Carbon monoxide	1-hr. and 8 hr.	Unclassified	Unclassified/Attainment
Nitrogen-dioxide	1-hr. and Annual	Attainment	Unclassified/Attainment
Sulfur dioxide	24-hr. Annual	Attainment	Unclassified
Lead		Attainment	Unclassified/Attainment
Hydrogen Sulfide	1 Hour	Unclassified	
Sulfates	24-Hour	Attainment	
Visibility Reducing Particles	8 Hour	Unclassified	

Source: ARB \*Updated annually \*\*Current as of June 2013

### Criteria Pollutants Classified as Non-Attainment

Particulate matter (PM<sub>10</sub>) pollution consists of very small liquid and solid particles floating in the air. Of greatest concern to public health are the particles small enough to be inhaled into the deepest parts of the lung. These particles are less than 10 microns in diameter and include fine particulate matter known as PM<sub>2.5</sub>. Sources of PM<sub>10</sub> include motor vehicles; wood-burning stoves and fireplaces; dust from construction, landfills and agriculture; wildfires and brush/waste burning; and windblown dust from open lands

There are two types of Ozone (O<sub>3</sub>): 1) ground-level or “bad” ozone, a pollutant produced close to the ground where people work and play, and 2) stratospheric or “good” ozone, a layer high up in the atmosphere where it forms a protective layer that shields the earth from ultraviolet light. Ground-level ozone is formed when pollutants emitted by cars,

power plants, industrial boilers, refineries, chemical plants, and other sources chemically react in the presence of sunlight. Ozone at ground level is a harmful air pollutant and can trigger coughing, throat irritation and congestion in turn worsening asthma, bronchitis and emphysema.

**Air Quality Monitoring**

The Air Quality Monitoring Program measures real-time pollutant concentrations at more than 200 locations throughout California, including approximately 40 ARB sites. The “Santa Cruz-2544 Soquel Avenue” monitoring station is closest to the proposed project site and actively measures: ozone, PM<sub>2.5</sub>, temperature, relative humidity and wind speed.

**Sensitive Receptors**

Sensitive receptors include individuals as well as groups relating to specific land uses; some receptors are considered more sensitive than others to air pollutants. Greater than average sensitivity results from pre-existing health problems, developmental age, proximity to emissions source, and/or duration of exposure to air pollutants. The ARB has identified the following people who are most likely to be affected by air pollution: children under 14, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that could contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, long-term care facilities, schools, and parks.

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project*:				
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 checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors (e.g. children, the elderly, individuals with	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

compromised respiratory or immune systems) to substantial pollutant concentrations?

- e) Create objectionable odors affecting a substantial number of people?

\* Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make these determinations.

## DISCUSSION

- a) The proposed project would not obstruct or violate implementation of any air quality plan or air quality regulations. No impact.
- b) During implementation of the proposed project, work would construct, recontour and rehabilitate existing dirt trails and roads. This work could potentially create dry, dusty conditions and contribute to the non-attainment status of the immediate area (near a monitoring station) for PM<sub>10</sub> and ozone; however, integration of project requirement **AIR 1 – Clean Air** (see Chapter 2, page 8) into project construction will keep these criteria pollutants at a reduced level. Less than significant.
- c) See b) above.
- d) The proposed project is located in the central portion of the Schwan Lake uplands of the Twin Lakes State Beach park unit. As stated above, sensitive receptors include individuals and groups related to specific land uses. Residential homes, a swim center and a beach are located on the boundaries of the park and include people who are likely affected by air pollution; however, integration of project requirement **AIR 1 – Clean Air** (see Chapter 2, page 8) into project construction will keep criteria pollutants at a reduced level. Less than significant.
- e) The proposed project site is surrounded by mixed commercial/residential uses, a busy roadway, a boat harbor, a swim center and a beach. Project implementation would likely add short-duration and minimal construction odors such as diesel odors from construction equipment. Considering the surrounding odors from vehicles, diesel boat engines, swim center chemicals and general beach odors, the implementation of the proposed project with associated, construction odors would be considered less than significant.

## IV. BIOLOGICAL RESOURCES

### Environmental Setting

Twin Lakes State Beach (SB) is located on the Santa Cruz County coast, is a major recreation destination, and annually host some one million visitors. Elevations at Twin Lakes SB range from mean sea level at the beach to 40 feet. The distinctive feature of this unit is Schwan's Lagoon, a freshwater lake, which extends from East Cliff Drive to a coastal terrace in the northern portion of this unit. The surface area of Schwan's Lagoon is 23.5 acres. A smaller lagoon, Bonita Lagoon, about 1.5 acres, is located southeast of Schwan's Lagoon. Total ocean frontage of the unit is about 6,000 linear feet; Schwan's Lagoon frontage is 11,200 linear feet.

### Vegetation/Habitat

The vegetation in and around the project varies from a mostly non-native grassland (coastal terrace prairie habitat), composed of soft brome (*Bromus hordeaceus*), narrowleaf crimson clover (*Trifolium angustifolium*), wild oat (*Avena fatua*), with native wavy-leafed soap plant (*Chilogalum pomeridianum*) and purple needlegrass (*Nasella pulchra*) to a live oak (*Quercus agrifolia*) woodland with a poison oak (*Toxicodendron diversilobum*), toyon (*Heteromeles arbutifolia*), blackberry (*Rubus sp.*) and coyote brush (*Baccharis pilularis*) understory.

### Special-Status Species

Sensitive biological resources that occur or potentially occur in or near the proposed project site are discussed in this section. Special-status species (sensitive species) are defined as plants and animals that have enhanced legal protection or that are considered sensitive by federal, state, or local resource conservation agencies and organizations. Specifically, this includes species listed as state or federally Threatened or Endangered, those considered as candidates for listing as Threatened or Endangered, species identified by the US Fish and Wildlife Service (USFWS) and/or California Department of Fish and Wildlife (DFW) as Species of Special Concern (SSC), animals identified by CDFG as Fully Protected or Protected (FP, P), and plants considered by the California Native Plant Society (CNPS) to be rare, threatened, or endangered. Also included are habitats that are considered critical for the survival of a listed species or have special value for wildlife species and plant communities that are unique or of limited distribution. All special-status species and their habitats were evaluated for potential impacts from the proposed ADA trail project. Existing available data was collected and reviewed to determine the proximity of special status plants, animals, and their habitats to the project area. Queries of the California Department of Fish Game's California Natural Diversity Database (CNDDDB) (CDFG 2015), and CNPS's On-line Inventory, Eighth Edition (CNPS

2015), were conducted for special-status species and habitats within the Soquel 7½ - minute United States Geological Society (USGS) quadrangle map.

### **Plant Species**

Eleven special status species have been identified by the California Natural Diversity Database CNDDDB and CNPS, occurring or having a potential to occur within the Soquel 7½ -minute United States Geological Society (USGS) quadrangle map.

### **Special-Status Plant Species that are Known to Occur, or Could Potentially Occur within the Project Area**

- **Ben Lomond spineflower** (*Chorizanthe pungens* var. *hartwegiana*) – Ben Lomond spineflower, is a Rare Plant Rank 1B.1 federally endangered annual herb that blooms from April through July. It is known to occur almost exclusively in the sandhill parklands in the Santa Cruz Mountains in a unique habitat known as the Zayante sandhills. There are a total of eighteen occurrences in the CNDDDB, none of which are in the Soquel quad. There is no suitable habitat for this species within the project area.
- **Robust spineflower** (*Chorizanthe robusta*) – Robust spineflower is a Rare Plant Rank 1B.1 federally endangered annual herb that blooms from April through September. It is found in cismontane woodlands, coastal dunes and coastal scrub, where it grows in sandy terraces and bluffs or in loose sand. The closest reported location to the project area for this species is from a 1936 collection off Rodeo Gulch Road near Soquel. The most recent closest reported location is from a ridgetop between Valencia Creek and an unnamed tributary to Trout Creek approximately 1.5 air miles north east of Aptos. Marginally suitable habitat for this species may occur in the project area.
- **Santa Cruz tarplant** (*Holocarpha macradenia*) – Santa Cruz tarplant is a Rare Plant Rank 1B.1 federally threatened/state endangered annual herb that blooms from June through October. It occurs in coastal prairie, coastal scrub as well as valley and foothill grassland, where it grows in light sandy soil or sandy clay. The closest and most recent reported location is from the fields in the back of Schwan Lake, around the project area, in 2007. From the CNPS Santa Cruz Chapter's list of local issues online: Twin Lakes Unit: This 26-acre unit of relatively flat coastal prairie is state-owned and is located just north of Schwan Lake in Twin Lakes State Park within the city of Santa Cruz. This unit hosts one of a cluster of populations found at the northern end of Monterey Bay. Rodeo Gulch Unit: This 27-acre unit is privately owned and straddles the Arana Gulch and Rodeo Gulch drainages north of the community of Soquel in Santa Cruz County. It is coastal terrace prairie that is bounded on the north, east, and south by existing development; the western side is bounded by lands that

have not been developed. This unit features one of a cluster of populations found at the northern end of Monterey Bay. Suitable habitat for this species occurs in the project area.

- **Anderson's manzanita** (*Arctostaphylos andersonii*) – Anderson's manzanita is a Rare Plant Rank 1B.2 perennial evergreen shrub that blooms from November through May. It is found in broadleaved upland forest, chaparral and north coast coniferous forest where it grows in openings and edges. Its only entry in the CNDDDB for the Soquel quad is from 1980, at the end of Danube Drive, which is approximately 1.75 miles inland, in Aptos. There is no suitable habitat for this species within the project area.
- **Woodland woollythreads** (*Monolopia gracilens*) – Woodland woollythreads is a Rare Plant Rank 1B.2 annual herb that blooms from February through July. It is found in chaparral, valley and foothill grasslands (serpentine), cismontane woodland, broadleaved upland forests and north coast coniferous forest, where it grows in grassy sites in openings in sandy to rocky soils. Its only entry in the CNDDDB for the Soquel quad is from 1908, near Carmichael's Mill (mapped as best guess by CNDDDB in 2010). Serpentine habitat required by this species does not occur in the project area.
- **Dudley's lousewort** (*Pedicularis dudleyi*) – Dudley's lousewort is a Rare Plant Rank 1B.2 perennial herb that blooms from April through June. It is found in chaparral, valley and foothill grasslands, cismontane woodland and north coast coniferous forest, where it grows in deep shady woods of older coast redwood forests and in maritime chaparral. Its only entry in the CNDDDB for the Soquel quad is from 1884 in Aptos. There is no suitable habitat for this species within the project area.
- **White-rayed pentachaeta** (*Pentachaeta bellidiflora*) – White-rayed pentachaeta is a Rare Plant Rank 1B.1 federally and state endangered annual herb that blooms from March through May. It is found in valley and foothill grasslands (often serpentine) and cismontane woodland where it grows on open dry rocky slopes and grassy areas, often on soils derived from serpentine bedrock. Its only entry in the CNDDDB for the Soquel quad is from 1933 in an unknown location, mapped as a best guess by CNDDDB in the vicinity of the city of Santa Cruz. Suitable habitat for this species may occur within the project area.
- **Santa Cruz clover** (*Trifolium buckwestiorum*) – Santa Cruz clover is a Rare Plant Rank 1B.1 annual herb that blooms from April through October. It is found in coastal prairie, broadleaved upland forest and cismontane woodland, where it grows on moist grassland in gravelly margins. Its only entry in the CNDDDB for the Soquel quad has no date and places the occurrence at "between Soquel cemetery and rodeo Gulch Road; Tan Property." Suitable habitat for this species may occur within the project area.
- **Kellogg's horkelia** (*Horkelia cuneata* var. *sericea*) – Kellogg's horkelia is a Rare Plant Rank 1B.1 perennial herb that blooms from April through September. It is found in chaparral, coastal scrub, coastal dunes and closed-cone coniferous forest

where it grows in openings in old dunes and coastal sandhills. There are a total of thirty-eight occurrences in the CNDDDB, none of which are in the Soquel quad. There is no suitable habitat for this species within the project area.

- **Santa Cruz Mountains beardtongue** (*Penstemon rattanii* var. *kleei*) – Santa Cruz Mountains beardtongue is a Rare Plant Rank 1B.2 perennial herb that blooms from May through June. It is found in chaparral, lower montane coniferous forest and north coast coniferous forest where it grows in sandy shale slopes, sometimes in the transition between forest and chaparral. There are a total of six occurrences in the CNDDDB, none of which are in the Soquel quad. There is no suitable habitat for this species within the project area.
- **San Francisco popcorn-flower** (*Plagiobothrys diffusus*) – San Francisco popcorn-flower is a Rare Plant Rank 1B.1 state endangered annual herb that blooms from March through June. It is found in valley and foothill grassland and coastal prairie where it grows grassy slopes with marine influence. There are a total of fifteen occurrences in the CNDDDB, none of which are in the Soquel quad. Suitable habitat for this species may occur within the project area.

### **Wildlife Species**

The variety of wildlife found in the park unit includes, but is not limited to, mule deer (*Odocoileus hemionus*), western grey squirrel (*Sciurus griseus*), raccoon (*Procyon lotor*), Spotted Towhee (*Pipilo maculatus*), Acorn Woodpecker (*Melanerpes formicivorus*), Pacific banana slug (*Ariolimax columbianus*) and western fence lizard (*Sceloporus occidentalis*). Special-status wildlife species that have been documented at Schwan Lake or could potentially occur near the project site are described below.

### **Special-Status Wildlife Species that are Known to Occur, or Could Potentially Occur within the Project Area**

- **Foothill Yellow-Legged Frog** (*Rana boylei*). Foothill yellow-legged frog is a California Species of Special Concern that occurs in partly-shaded, shallow streams and rifles with a rocky substrate in a variety of habitats. Several occurrences on Hinckley Creek upstream from Soquel Creek confluence are listed in the CNDDDB from 1992 through 2008. There is no suitable habitat for this highly aquatic frog in the project area
- **Santa Cruz long-toed Salamander** (*Ambystoma macrodactylum croceum*). This federal and state listed endangered species inhabits wet meadows near sea level in a few restricted locales in Santa Cruz and Monterey counties, the nearest of which, Valencia Lagoon, is approximately seven miles away from the project area, to the west. Threats to this species include activities that result in sedimentation or water removal in suitable habitat. There is no suitable habitat for Santa Cruz long-toed salamander within or adjacent to the project site.

- **Ohlone tiger beetle** (*Cicindela ohlone*). Ohlone tiger beetle is a federal listed endangered species that inhabits remnant native grasslands with California oatgrass and purple needlegrass in Santa Cruz County. The CNDDDB lists one occurrence for the Soquel quad on a grassy terrace along Winkle Ave. in Soquel. There is marginal habitat in the project area in the upland grassland component, but the majority of grass species are non-native so it's not likely to support this species.
- **Monarch butterfly** (*Danaus plexippus*). Monarch butterfly is a locally sensitive species that makes winter roosts along the California coast from Mendocino to Baja California, Mexico. The species generally roost in wind-protected tree groves of eucalyptus, Monterey pine and cypress with nectar and water sources nearby. There are eight occurrences in the CNDDDB for the Soquel quad, none of which are in the project area. Suitable habitat for this species may occur within the project area.
- **Zayante band-winged grasshopper** (*Trimerotropis infantilis*). Zayante band-winged grasshopper is a federal listed endangered species that inhabits isolated sandstone deposits in the Santa Cruz Mountains mostly on sand parkland habitat but also in areas with well-developed ground cover and in sparse chaparral with grass. The CNDDDB lists one occurrence from 1941 in an undisclosed location in Santa Cruz. There is no suitable habitat for this species within the project area.

### **Migratory Bird Protection**

The Migratory Bird Treaty Act of 1918 makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to Federal regulations. The migratory bird species protected by the Act are listed in 50 CFR 10.13. The U.S. Fish and Wildlife Service has statutory authority and responsibility for enforcing the Migratory Bird Treaty Act.

In accordance with the Migratory Bird Treaty Reform Act of 2004 (MBTRA) (Pub L. No. 108-447, 118 Stat. 2809, 3071–72), all species native to the United States or its territories, which are those that occur as a result of natural biological or ecological processes (See 70 FR 12710, March 15, 2005) are included.. Nonnative species whose occurrences in the United States are solely the result of intentional or unintentional human-assisted introduction(s) are not included.

### **Sudden Oak Death**

Discovered in 1995, Sudden Oak Death (SOD) is caused by the pathogen *Phytophthora ramorum*, which has infected and killed thousands of tanoak, coast live oak, Shreve oak, and California black oak trees in coastal forests from Humboldt County to Monterey County (COMTF 2014). This water mold also infects many other species, including

California bay laurel (*Umbellularia californica*), Pacific madrone (*Arbutus menziesii*), California buckeye (*Aesculus californica*), coast redwood, Douglas-fir, big leaf maple (*Acer macrophyllum*), California honeysuckle (*Lonicera hispidula* var. *vacillans*), California coffeeberry (*Rhamnus californica*), toyon (*Heteromeles arbutifolia*), rhododendron (*Rhododendron* spp.), manzanita (*Arctostaphylos* spp.) and huckleberry (*Vaccinium* spp.). SOD may be spread when host plants, wood chips, burls, other host plant products or soils contaminated with the pathogen's spores are moved to previously uninfected areas (COMTF 2014). SOD thrives in cool, wet to moist climates, and its spores can be found in soil and water as well as plant material. The risk of SOD spread is greatest in muddy areas and during rainy weather where spore-harboring hosts are present. Detached plant leaves, organic material, and soil, which may harbor spores of the pathogen, are more likely to stick to vehicles, equipment, and humans when they are wet.

Santa Cruz County is one of 14 California counties to have confirmed SOD findings and is under state and federal quarantine regulations governing the movement of affected plants or plant material out of the quarantined area (COMTF 2014). The California County Agricultural Commissioners are the enforcement agents for state and federal regulations governing *Phytophthora ramorum*.

## **Wetlands**

The federal Clean Water Act (CWA) defines wetlands as lands that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The U.S. Army Corps of Engineers (USACE) has jurisdictional authority of wetlands under provisions found in Section 404 of the CWA. Typically, USACE-jurisdictional wetlands meet three criteria: hydrophytic vegetation, hydric soils, and wetland hydrology. No USACE-jurisdictional wetlands occur within the project footprint.

Waters of the U.S. (aka Other Waters) are regulated by the USACE under Section 404 of the CWA. These are defined as all waters used in interstate or foreign commerce, waters subject to the ebb and flow of the tide, all interstate waters including interstate wetlands and all other waters such as: intrastate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds. Based on this definition Schwan Lake and the unnamed drainage flowing through the project area constitutes a Water of the U.S. and is subject to regulation by the USACE and the California Regional Water Quality Control Board (RWQCB) under sections 404 and 401 of the CWA, respectively.

Pursuant to Fish and Game Code Section 1600 et seq., the DFW regulates any work undertaken in or near a river, stream, or lake that flows at least intermittently through a

bed or channel. Proposed construction activities for this project are subject to DFW jurisdictional authority, but the project is located above the ordinary high water mark of the unnamed drainage and Schwan Lake and is not subject to USACE jurisdiction.

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
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 Wildlife or the U.S. Fish and Wildlife Service?	<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 Wildlife 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 checked="" type="checkbox"/>	<input 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"/>

## CRITERIA FOR DETERMINING SIGNIFICANCE

The analysis of determining the significance of impacts of the Proposed Action to Biological Resources is based on criteria **IV a – f**, described in the environmental checklist above.

## DISCUSSION

a) (i) **Special status plant species.**

Suitable to marginally suitable habitat occurs within the project area for Santa Cruz tarplant, robust spineflower, white-rayed pentachaeta, Santa Cruz clover, and San Francisco popcorn-flower. Most ground disturbing work will not occur in suitable habitat for these species. Integration of **Standard Project Requirement Bio-1: Special Status Plant Species** (See chapter 2; Table 2.1 Department of Parks and Recreation Project Requirements) would reduce project impacts to a less than significant level.

(ii) **Raptors and migratory birds.**

If a project occurs during the breeding season, approximately February 1 – September 15 in California, and is deemed to warrant a nest survey prior to initiation of construction activities and at the discretion of the Environmental Scientist, a nesting bird survey will be performed. Integration of **Standard Project Requirement Bio 1b, Raptors and Migratory Birds**, (See chapter 2; Table 2.1 Department of Parks and Recreation Project Requirements) would maintain impacts at a less than significant level.

b) Although six coastal live oaks, no greater than 10 inches in diameter at breast height, will be removed to install a two part bridge to span the unnamed drainage, the area as a whole will remain relatively unchanged in the abundance of mature riparian trees. This minor decrease in the total amount of oaks in the park will be a less than significant impact.

c) Installation of the two part bridge spanning a drainage, with the abutments being placed outside of the ordinary high water mark, along with the installation of an overlook to Schwan Lake at the end of the trail, along with steps down to the lake edge, have the potential to cause a temporary increase in erosion and siltation. Integration of **Standard Project Requirement Hydro 1: Erosion and Sediment Control and Pollution Prevention** (See chapter 2; Table 2.1 Department of Parks and Recreation Project Requirements) will maintain erosional and siltation occurrences to a less than significant level.

d) Trail construction, bridge installation and overlook and picnic pad construction will not interfere with or impede the movement of any species of fish or non-human animal. No impact.

- e) The project will not be contrary to any established biological resource protection policies; however, per State Park Best Management Practices, **Integration of Bio 2, Sudden Oak Death** (See chapter 2; Table 2.1 Department of Parks and Recreation Project Requirements) will maintain impacts to a less than significant level.
- f) No conservation plans will be affected by project activities. No impact.

## V. CULTURAL RESOURCES

### ENVIRONMENTAL SETTING

#### CULTURAL BACKGROUND

The following discussion of the cultural resources background of the proposed project APE is based upon work completed within and around Santa Cruz County. The records search consisted of a review of State Park Unit Data Files, and site records, Consultation with the Santa Cruz District Archaeologist, and check of the most recent additions of historical properties to the National Register of Historical Places and The California Register of Historic Resources.

#### **Prehistoric Cultural and Environmental Setting**

The prehistory of the project area overlays a larger fabric of dynamic cultural transformations that began sometime over 12,000 years ago, during the late Pleistocene (the end of the Great Ice Age) when world sea level was lower and people first arrived along the west coast of North America. Episodes of dramatic (even cataclysmic) environmental changes have led to the recognition of four major climatic shifts that have transpired during the time of human occupation. These changes define the Late Pleistocene, Early, Middle and Late Holocene epochs (we are in the Late Holocene, which began some 3,200 years ago).

Archaeologists have shown that people have been active agents of change to the landscape throughout the San Francisco Peninsula ever since the time of their first arrivals (Lightfoot et al. 2013). The early presence of humans is evidenced through the antiquity of the multiple prehistoric archaeological sites that have been found distributed throughout the region as well as across the rest of western North America. It is known that the Americas were populated through more than one migration event by people coming across Beringia (the formerly dry land mass that once connected Siberia to Alaska) from Asia by following the migratory habits of the game animals they hunted (Haynes 2002). Genetic studies have discovered that sometimes populations migrated back into Siberia from Beringia. Clearly substantial cultural diversity existed even in the distant past.

Within the Santa Cruz Locality, four general archaeological phases have been defined based on, a) changing combinations of artifact forms from temporally discrete archaeological sites, and b) proposed decreases in group mobility through time. These phases are the Metcalf Phase (ca. 10000-5500 B.P.), the Sand Hill Bluff Phase (ca. 5500-3000 B.P.), the Año Nuevo Phase (ca. 3000-900 B.P.), and the Bonny Doon Phase (ca. 900 B.P. to Spanish colonization) (Hylkema and Cuthrell 2013; Jones et al. 2007:137; Milliken et al. 2007:104).

### Sand Hill Bluff Phase (ca. 5500-3000 B.P.):

Several archaeological sites within the Santa Cruz Locality and San Francisco Peninsula dating to the Sand Hill Bluff Phase produced artifacts that suggest relatively high group mobility. Given that Franciscan chert sources are spatially restricted to the Santa Clara Valley and Monterey chert to the coastline around Año Nuevo Point, the distribution of these materials serve as markers of exchange and travel. Although locally available Monterey chert from the Año Nuevo source typically dominates chipped stone inventories in most Santa Cruz Locality sites through time, the regular occurrence of non-local lithic materials and the variety of point forms during the Sand Hill Bluff Phase indicates higher group mobility than in the subsequent Año Nuevo Phase, when lithic assemblages are comprised almost exclusively of Monterey chert and a few North Coast Range obsidians (Hylkema 1991).

Sand Hill Bluff Phase sites share similar mixes of corner and side-notched point forms, as well as the larger Rossi Square-stemmed type (defined by Jones and Hylkema 1988) and shouldered contracting-stemmed forms made from Monterey and Franciscan cherts. Points and bifaces of locally available chalcedony, opal, and quartz (Hylkema 2012), as well as of imported obsidian (sourced from the North Coast Ranges and eastern Sierra Nevadas), are found regularly in sites throughout the interior Santa Clara Valley, the Scotts Valley basin, and along the coastlines of Santa Cruz and San Mateo Counties.

Other attributes of this temporal phase include the common occurrence of pebble choppers or hand axes made from andesitic and quartzitic cobbles, possibly used to split larger bones to extract marrow from larger prey species. Mixed assemblages of milling tools are evident, and although milling slab fragments are infrequent; numerous discoidal hand stones that often exhibit deliberately shaped shoulders and slightly beveled axial ends are regularly recovered. Sand Hill Bluff phase assemblages also include mortars and pestles, an indication of the increasing value of acorns and possibly other plant foods to the diet, as well as greater dependence upon storable food resources (Hylkema 1991).

### Año Nuevo Phase (ca. 3000 to 900 B.P.):

The Año Nuevo Phase saw a change in lithic materials, with bifaces and points made from Monterey chert (and less commonly from exotic obsidian) becoming the exclusive chipped stone source used throughout the coastal and interior upland zones of the Santa Cruz Mountains and Peninsular coast (Hylkema 1991; Milliken et al. 2007). This corresponded to a time of greater artifact diversity and social complexity among peoples living in the valleys and oak woodlands surrounding San Francisco Bay, where an increasing reliance on stored nut crops has been credited as key element leading to a greater level of social complexity and possibly to greater territorial circumscription, with a

corresponding reduction in group mobility (Basgall 1987; Breschini 1983; Hylkema 2007; Milliken et al. 2007).

On the coast, milling tool assemblages continued to include hand stones and milling slabs as well as mortars and pestles, an indication of the continued need to pursue a diversified nut and seed food harvesting strategy. Increasing numbers of grooved and edge-notched stone weights along with bone fishing gorges suggest a greater emphasis on line fishing than during the previous Sand Hill Bluff Phase, but faunal data are currently lacking. Bone scapula saws, awls, and fragments of whale rib and abalone prying tools have been noted at several sites (Hylkema 1991; 2002).

Whole Olivella type A series beads and unmodified Olivella shells are present at most coastal sites in this phase (Hylkema 1991; 2002), reflecting their increased valuation among interior cultures, but shaped beads are nearly absent, with only a few Olivella type G series saucer beads recovered at SCR-9 and SMA-218. Whole Olivella shells are also present in most sites, albeit in low numbers. It appears that the export of Olivella beads or whole shells to California's interior was one component of coastal peoples' economies during this time.

Bonny Doon Phase (ca. 900 B.P. to Spanish Colonization):

Within the greater San Francisco Bay area, a trend toward more complex social organization appears to have gained momentum after 1300 B.P. with the advent of the Middle/Late Transition (ca. 1100-900 B.P.) and the Late Period, also referred to as the Augustine Pattern (Fredrickson 1974:57-73). This was a time of cultural transition that replaced earlier artifact assemblages, particularly of Olivella shell beads and abalone pendants, with new types that served as markers of wealth and specialized social group membership (Bennyhoff and Hughes 1987; Groza 2002; Hughes 1994; Milliken et al. 2007; Hylkema 2002; 2007). Higher densities of these shells at coastal sites during this phase indicate that coastal peoples increased collection in response to greater demands for these raw materials by peoples living in the interior. Mortuary contexts in interior sites throughout Central California display large increases in olivella and abalone shell goods after the Middle/Late Transition (ca. 1100-900 B.P.), and up to the Spanish Mission Period (Hughes 1994; Hylkema 2007; Schwitalla 2013).

During the Bonny Doon Phase, the ancestral Ohlone of San Mateo County lived in a landscape of great ecological diversity. Archaeological evidence from sites in the area shows that productive ecological zones, in terms of native subsistence needs, involved littoral and grassland habitats concentrated along the narrow coastal terraces and upland meadows in the Santa Cruz Mountains. A survey of nearly 200 sites on the peninsula between Montara Point and the San Lorenzo River (42 at Año Nuevo State Reserve)

west of the crest of the Santa Cruz Mountain range, found that 70 percent occur within the terrace zone, 20 percent have been found in the adjacent mountain uplands, and the remaining 10 percent are spread along riparian corridors that cut into the mountains (Hylkema 1991:23).

By the end of the prehistoric period, an economic network developed throughout central California that transported coastal products to the interior and brought exotic materials to the coast. Despite linguistic variations there was a shared ideology and wealth system which grew exponentially until everything was truncated by historic developments heralded by the abrupt arrival of Spanish explorers in the fall of 1769.

### Historical Period Native Lifeways

Ethnohistoric observations written during the first European land expedition of 1769 and later missionary records noted that several different tribal communities (referred to as tribelets by contemporary anthropologists) controlled territory along the San Francisco Peninsula coast. It was noted that coastal populations seasonally relocated from the coastal edge to locations in the nearby Santa Cruz Mountains (Palou, Vol. 3 in Bolton 1926:3:293-303; Crespi in Stanger and Brown 1969:88). Kinship data derived from Spanish Mission records show that coastal communities ultimately assimilated into a larger Bay Shore alliance network through marriage and kinship (King 1994:203-228; Milliken 1983; 1991; 1995).

At the time of first contact populations were organized into extended families, or clans that formed villages. Within the villages, clan members ascribed to different clubs or societies. Membership usually involved initiation where novices learned the customs of the organization, and used shell beads to pay dues. Different membership driven organizations sponsored ceremonial events, each having their own distinctive costumes and regalia. Abalone (*Haliotis*) shell pendants were frequently used as badges of membership and rank. Together the various organizations formed the fabric of society and directed the storage and redistribution of surplus food resources, construction of village buildings, planned hunting strategies and followed the seasonal cycles of nature that would determine where and when they should relocate themselves. Both men and women could be members of various societies and an elite group of women, called Mayen, directed the construction of large circular dance houses that were excavated several feet below the surrounding ground level.

The Mayen selected the most virtuous individuals to represent various spiritual forces that were personified in dances and ceremonies. This practice was called Kuksui. Kuksui dancers wore woven feather bandoleers made from woodpecker quills placed edge to edge that draped over their foreheads and down their shoulders. Young children were

initiated into the various societies and were taught proper manners and customs acceptable to their community by their elders. Once membership was invoked, they earned status and rank over the term of their lives.

Both men and women used sharpened and polished deer bone pins to hold their hair into various fashionable styles. Both occasionally adorned themselves with polished circular stone disks that were inserted in their ear lobes or nasal septum. Most had their ears pierced and wore decorations of brightly colored feathers and bird bone tubes. Finely woven fibers of milkweed were used to make hairnets that sometimes were covered with feathers or shell beads. Houses called ruk and/or tac were constructed of Tule reeds that were tightly thatched and woven over a framework of willow poles. Every house had an indoor and outdoors hearth and underground oven.

Many fist-sized river cobbles were used to distribute heat in the ovens where plant bulbs, shellfish and animal meats could be roasted. Long poles with painted rings of black, red and white and brightly colored feathers attached were erected in the cemeteries adjacent to the villages. Each village also had a partially underground, roofed sweathouse where interior fires steamed the occupants like a sauna. This was where the men spent a lot of their time telling stories and repairing their hunting tools. Bows were kept in the sweathouse where the smoke kept the human scent off them. When women had just given birth, both she and the newborn spent their first few days together resting on a bed of herbs within a special sweathouse, where they could keep warm together.

### History

The Santa Cruz area witnessed or was a contributor to several major historic developments in California: Spanish exploration, the establishment of the mission system, the economic hegemony of those missions and the concomitant effects upon the native people, Mexico freeing itself of Spanish rule, the secularization of the missions, the roots of California Statehood, the rise of agriculture in the state, and the development of reliable coastal navigation.

The land once known as Alta California remained remote from the conquering and plundering conducted by Spain in Mexico beginning in the 1520s. The development of the port of Acapulco on the Pacific provided a base for exploring the western shore of North America. Juan Rodriguez Cabrillo sailed up the coast of California, claiming the land for Spain. Cabrillo was the first of many explorers in search of a northern passage between the Atlantic and Pacific. His flotilla anchored in present-day Ventura, then sailed west through the Santa Barbara Channel, eventually ranging as far north as the Russian River, passing near Punta Año Nuevo. Cabrillo and other subsequent explorers noted the extensive populations of seals and other marine mammals during their journeys through the region, but failed to find the rich resources of Mexico, and interest in the area waned.

Beginning in the 1560s, California waters were often visited by Spanish ships bearing trade goods from the Philippines. The galleons left Acapulco, traversed the Pacific to the west along the Equator, following the 'trade winds,' returned east on a northerly reach that brought them to Cape Mendocino, from there they sailed down the California coast, and returned to Acapulco. Sebastian Vizcaino was sent up the coast of California in 1602 to locate a good harbor in order to protect Spain's highly prized shipping routes and to deflect British claims on Alta California after a visit by Sir Francis Drake. Sailing northwards, Vizcaino's small fleet worked its way through the Santa Barbara channel and eventually came to Monterey Bay. Vizcaino and his fleet reached the Año Nuevo area soon after New Years day of 1603. The expedition's chaplain, Father Antonio de la Ascension labeled the point on his map "Punta de Año Nuevo," believing that this was the north end of Monterey Bay.

After Vizcaino's expedition, there was no Spanish exploration of Alta California until the mid-18th century. As the mission system developed, a new interest in the area developed, chiefly in the search for mission locations. Gaspar de Portola and Father Juan Crespi passed through the area in the fall of 1769, during their fruitless search for Monterey Bay, as described by Vizcaino. They placed a cross at Santa Cruz and then climbed over the intervening hills to become the first Europeans to see San Francisco Bay. Misión La Exaltación de la Santa Cruz was founded on the north bank of the San Lorenzo River in 1791 by Father Fermín Lasuén. Shortly thereafter the secular community of Branciforte was established south of the river, where an unfortunate collection of former convicts banished from Mexico took up residence. The padres were dismayed that this hotbed of smuggling and vice should be placed in some of their best grazing land.

While Mexico struggled to free itself from Spanish rule (1807-1810), Spain continued to support the Franciscan Missions but stopped sending supply ships to the presidios, and by 1815 the missions became the sole supporter of these communities. The missions expanded their facilities to encompass a greater range of tasks so that by the end of Spanish rule in Alta California (1821), they were the farmers, bankers, manufacturers and traders. The Mexican Government allowed the missions to trade with foreign countries, and the vast herds of cattle (over 150,000 head in 1830) created a lucrative hide and tallow market with England and the United States, such that by 1830 the missions had changed emphasis from agrarian institutions to ranching.

The growing civilian population of California petitioned the Mexican Government to break up the extensive mission land holdings so that they could compete in the hide and tallow trade. Between 1834 and 1836 the Mexican congress opened eight million acres of mission lands in California to private ownership. These lands had been held in trust for

the mission Indians, but once the role of the missions was reduced to that of local parishes the Native Americans lost their claim to the land.

Following the 1848 discovery of gold at Sutter’s Mill, Coloma, large numbers of new immigrants from the Americas, Europe, and Asia began arriving in California. In 1850, California became a state, and thousands of acres of rancho property that had been granted to Mexican citizens began to be acquired by the newcomers.

Native American Consultation

In 2015, Assembly Bill 52 (AB52) was passed and added to the Environmental Quality Act. The addition defined “tribal cultural resources” as: sites, features, places, cultural landscapes, sacred places and objects with cultural value to a California Native American tribe. This new category of cultural resources must be included or determined eligible for inclusion on the California Register of Historical Resources, or a local register of historical resources. The resources must be determined by the lead agency to be significant pursuant to criteria established by PRC 5024.1.

AB52 requires that all Native American tribes, entities and individuals that have notified a State Agency in writing, to be informed of proposed projects, and have an opportunity to consult with the lead agency regarding all cultural resources including tribal cultural resources.

California State Parks practices on-going Native American consultation with various Native American entities in the Santa Cruz area. This on-going and project specific Native American consultation has failed to identify any previously recorded or identified tribal cultural resources. However, consultation is on-going to identify all concerns that Native American entities may have regarding this proposed project.

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
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 type="checkbox"/>	<input checked="" 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) Disturb any human remains including those interred outside of formal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

cemeteries?

- d) Would the project cause a substantial adverse change in the significance of a Tribal Cultural Resource as defined in Public Resources Code 21074?

### CRITERIA FOR DETERMINING SIGNIFICANCE

The analysis of determining the significance of impacts of the Proposed Action to Cultural Resources is based on criteria **V a – d**, described in the environmental checklist above.

### DISCUSSION

- a) There are no previously recorded historical resources present within the proposed project area. A pedestrian survey conducted in June 2014 by Santa Cruz District Archaeologist, Mark Hylkema; and in July 2015, by California State Parks Archaeologist Steven Hilton failed to identify any historical resources within the proposed project area. Within the project area there are what are considered traditionally historical plantings of vinca (*Vinca minor*), English ivy (*Hedera helix* L), and wild rose (*Rosa californica*). These plants are commonly indicator species of historical use of areas. However, none of the vegetation is near proposed trail alignments and/or upgrades. The vegetation however indicates that areas near the proposed project may have been used historically.

While there is some indication of previous historical use of the larger recreational area, the records search and pedestrian surveys failed to identify any historical resources. As designed, this proposed project would have No Impact.

- b) There are no previously recorded archaeological resources within the proposed project area. The project area landform consists of an oak wooded ridge between the two drainages forming Schwan Lagoon. While the proposed project area has been affected by historical and modern development, the proximity to fresh water resources prehistorically are indicative of a resource rich environment that was most likely used by prehistoric Native American populations. While there have not been any archaeological resources recorded within the project area, the landforms suggest that there is a medium to high probability that buried archaeological resources may exist near or within the proposed project area. Additionally, buried archaeological deposits in Santa Cruz County are not unusual and are very important to the understanding of the past.

Construction and rehabilitation activities related to this proposed project, including but not limited to earth movement, plant removal and planting, equipment and material staging areas, or operation of equipment could significantly impact unrecorded archaeological deposits located within the proposed project area. Adherence to **Cultural SPR – 1 Previously Undocumented Resources, and Cultural SPR 2 - Archaeological Monitoring** (See chapter 2; Table 2.1 Department of Parks and Recreation Project Requirements) would reduce impacts to archaeological resources to a less than significant level.

- c) The probability of unearthing human remains during project work is low; however, in the unlikely event, such finds are uncovered, DPR will implement the protocol developed in cooperation with the Native American Heritage Commission (NAHC) to handle these discoveries.

If any human remains or burial artifacts were identified, implementation of **Cultural SPR 3 - Human Remains Discovery** (See chapter 2; Table 2.1 Department of Parks and Recreation Project Requirements) would reduce the impact to a less than significant level.

- d) Native American consultation with local interested entities is on-going and continuous. A Sacred Lands File and Native American Contacts List Request were sent to the Native American Heritage Commission (NAHC), on July 27, 2015. The Sacred Lands File Search did not reveal and sacred lands within the proposed project area.

All Native American individuals and entities identified by the NAHC were sent a letter describing the project and soliciting comments and concerns about potential project impacts. If a response from an identified entity was not received, then phone calls were made soliciting comments and concerns. On-going discussions and collaborations with Native Americans has failed to identify and Tribal Cultural Resources or any other concerns from the Native American community. No impact.

## **VI. GEOLOGY AND SOILS**

### **ENVIRONMENTAL SETTING**

The proposed project is located within the Salinian block of the southern Coast Ranges geomorphic province (CGS 2002). The Salinian block is a piece of continental material comprised of granite bounded on the northeast by the San Andreas Fault Zone and by the Sur-Nacimiento Fault Zone on the southwest. Coastal bluff areas in Twin Lakes State Beach (TLSB) are composed of the Pliocene-aged Purisima Formation overlain by a thin mantle of unconsolidated terrace deposits (CDPR 1988). Siltstones and sandstones comprising the Purisima Formation contain near vertical joints and fractures as well as faults that separate materials of different resistance to erosion, creating embayments like Schwan Lagoon. These joints become zones of weakness, contributing to block falls and sea cliff retreat and collapse.

### **Topography**

Elevations in the park range from sea level to 40 feet msl (above mean seas level). Slopes vary from level to nearly vertical at the edge of the coastal terrace, which drops steeply to the adjacent lagoon and beach areas.

### **Regional Seismicity and Fault Zones**

A fault is defined as a fracture or zone of closely associated fractures along which rocks on one side have been displaced with respect to those on the other side. A fault zone is a zone of related faults that commonly are braided and subparallel, but may be branching and divergent (CDC 2007). An “active fault,” according to the California Geological Survey, is a fault that has ruptured in the last 11,000 years. TLSB is located within a relatively active seismic area (City of Scotts Valley 2008), but is not within an Alquist-Priolo Earthquake Fault Zone (APEFZ) as designated by the California Department of Conservation’s California Geological Survey (CDC 2015).

The project site is within approximately 5 miles of the active Ben Lomond Fault and within 20 miles of the Zayante-Vergeles Fault and Monterey-Tularcitos Fault Zone. The Zayante Fault is capable of producing an earthquake of magnitude 7.4 on the Richter scale (City of Scotts Valley 2008).

Historically, the most severe earthquake to affect the project area was the 1989 Loma Prieta Earthquake (Butano Fault) with a Richter magnitude of 7.1 (Santa Cruz County 1994). Potentially active faults mapped on the Fault Activity Map of California (Jennings, 1994) could produce earthquakes that result in ground motion at the project site.

### **Soils**

The National Cooperative Soil Survey of the USDA Natural Resources Conservation Service (NRCS 2015) has identified five soil map units for the project area. These are:

Watsonville loam, thick surface, 2 to 15 percent slopes; Watsonville loam, 2 to 15 percent slopes; Water; Pinto loam, 0 to 2 percent slopes; and Aptos loam, warm, 50 to 75 percent slopes.

- Watsonville loam, 2 to 15 percent slopes and Watsonville loam, thick surface, 2 to 15 percent slopes  
 Nearly the entire project area occurs within these two closely related soil types. Both mapping units consist of somewhat poorly drained loamy and clay loam soil derived from alluvium. Soil depth reaches 39 inches and the water table lies at more than 80 inches from the surface.
- Pinto loam, 0 to 2 percent slopes  
 A small portion of the existing trail crossing the degraded grassland occurs within this mapping unit. It consists of a moderately well drained loamy and sandy clay loam soil derived from alluvium and/or marine deposits. Soil depth averages 51 inches and the water table lies at more than 80 inches from the surface.
- Aptos loam, warm, 50 to 75 percent slopes  
 This soil occupies the steep slopes below the trail overlook. It is a well-drained relatively shallow loam and clay loam soil that is derived from residuum weathered from siltstone and/or residuum weathered from sandstone and shale. Aptos loam soils reach a depth of 24 inches and a water table that lies at more than 80 inches from the surface.
- Water  
 The terminus of the trail work adjoins this soil mapping unit, which consists of standing water.

Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
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Would the project:

- 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 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

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Special Publication 42)

- |   |                          |                          |                                     |                                     |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| ii) Strong seismic ground shaking?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| iii) Seismic related ground failure including liquefaction?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| iv) Landslides?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" 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 type="checkbox"/>            | <input checked="" 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 type="checkbox"/>            | <input checked="" type="checkbox"/> |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste 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"/> |
| f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

**CRITERIA FOR DETERMINING SIGNIFICANCE**

The analysis of determining the significance of impacts of the Proposed Action to Geology and Soils is based on criteria VI a – f, described in the environmental checklist above.

**DISCUSSION**

The project proposes to upgrade approximately 1600 linear feet (lf) of existing trail to accessibility standards and construct 800 lf of new re-routed trail. In addition, two new fiberglass stringer bridges (70’ and 40’ in length) with concrete abutments would be constructed to span a permanent drainage.

- a) The proposed action has the potential to expose people or structures to potential adverse effects. See individual responses to Items a (I-IV) below.
  - i) The project site is not located within an Alquist-Priolo Earthquake Fault Zone (APEFZ) as designated by the California Geological Survey (CGS). The closest known fault is the Ben Lomond Fault, located approximately 5 miles from the project site. Therefore, the potential for ground surface rupture is low due to the

absence of known active faults in the immediate vicinity of the project area. Less than significant impact.

- ii) As described in the Environmental Setting above, the closest known active fault is the Ben Lomond Fault, which produced the 1989 Loma Prieta Earthquake (Richter magnitude 7.1). This fault and potentially others within 20 miles of the project site could induce strong seismic shaking and affect the proposed two new fiberglass stringer bridges; however integration of **Project Specific Requirement GEO-1: Seismic Building Design Criteria** (See chapter 2; Table 2.1 Department of Parks and Recreation Project Requirements) would address impacts from seismic events. No impact.
  - iii) Seismic-induced ground failure, such as liquefaction, usually occurs in unconsolidated granular soils that are water saturated. During seismic-induced ground shaking, pore water pressure can increase in loose soils, causing the soils to change from a solid to a liquid state (liquefaction). The project is not located on soils that could be susceptible to liquefaction. No impact.
  - iv) Most of the project area is on a level to gently sloping marine terrace, including the parking area. No steep slopes subject to landsliding occur within the project area, with the exception of proposed non-ADA steps adjoining the overlook. At this location steps would be constructed on a steep bluff to the edge of Schwan Lake. Although there is the possibility of surface erosion, there is no evidence of previous landslides and the construction of steps would not contribute to any existing landslide potential. No impact.
- b) The project could create temporary unstable soil conditions and increased erosion during ground disturbing activities; however integration of **Standard Project Requirement HYDRO-1: Erosion and Sediment Control and Pollution Prevention** and standard DPR Best Management Practices will address any potential erosion issues. Less than significant.
- c) Based upon available data, the project site is not located within a geologic unit or on soil that is known to be unstable or that would become unstable, as a result of the project. In addition, as described above, the project is not located on soils that could be susceptible to liquefaction or landslide. No impact.
- d) No known expansive soils, as defined in Table 18-1-B of the Uniform Building Code (1997), occur within the project area. No impact.
- e) The project does not involve the installation of a septic system or leach field. No impact.

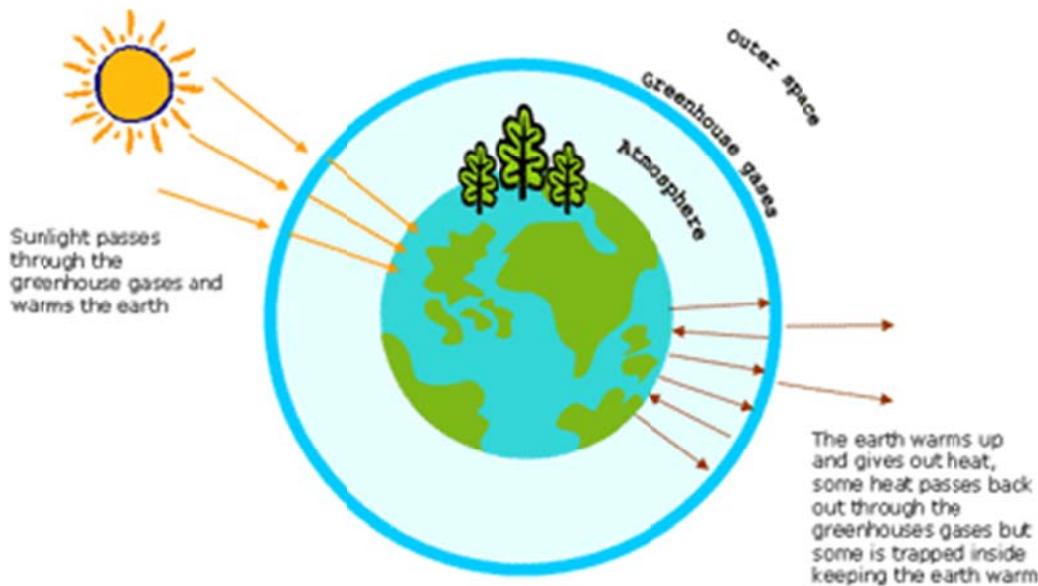
- f) No known paleontological resources exist within the project area, nor are they likely to be encountered by the proposed work. No impact.

## VII. Greenhouse Gas Emissions

### ENVIRONMENTAL SETTING

#### What Is a Greenhouse Gas

Certain gases trap heat radiating from the Earth's surface, much like the glass in a greenhouse—hence the term “greenhouse gas.” By definition, a greenhouse gas (GHG) is any gaseous compound in the atmosphere that is capable of absorbing infrared radiation, thereby trapping and holding heat in the atmosphere.



The Greenhouse Effect - St. Albans City & District Council

#### GHG Sources

- **Carbon dioxide (CO<sub>2</sub>)**: Carbon dioxide enters the atmosphere through burning fossil fuels (coal, natural gas and oil), solid waste, trees and wood products, and also as a result of certain chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH<sub>4</sub>)**: Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- **Nitrous oxide (N<sub>2</sub>O)**: Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- **Fluorinated gases**: Hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes

for stratospheric ozone-depleting substances (e.g., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in smaller quantities, but they are very potent and are sometimes referred to as High Global Warming Potential gases.

Each of these gases can remain in the atmosphere for different amounts of time, ranging from a few years to thousands of years and all remain in the atmosphere long enough to become well mixed all over the world, regardless of the source of the emissions.

### **Plans & Policies**

California Assembly Bill No. 32 (AB-32), also known as the Global Warming Solutions Act, was passed on August 31, 2006. AB 32 codifies the state's goal by requiring that the state's greenhouse gas (GHG) emissions be reduced to ten percent below the 1990 GHG emissions level as a target to be achieved by 2020. Regulating carbon dioxide (CO<sub>2</sub>), which is the major GHG contributor to global warming, has been the main focus for achieving the 1990 levels.

In December 2009, the Natural Resource Agency adopted amendments to the *Guidelines for Implementation of the California Environmental Quality Act* addressing the significance of impacts for greenhouse gas emissions (State of California 2009). Section 15064.4 of the amended CEQA Guidelines states: "A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project."

"Cool Parks" --Addressing Climate Change: Climate change threatens all that we value and protect in the world. Addressing it will be the defining challenge for this and several subsequent generations of Parks leaders. We must respond in each of the following areas:

1. Getting Our House In Order —In State Parks we must reduce our emissions of greenhouse gases (GHG) through energy conservation, innovative design and other creative approaches. We must maximize the carbon-sequestering potential of our forests and other habitats when consistent with our mission.
2. Adaptation— We must modify our resource management, acquisition and restoration policies and practices to help ensure that the species and habitats we protect can successfully adapt to the effects of climate change
3. Interpretation— We must teach our visitors, including children, about the impacts of climate change on parks and inspire them to adapt to climate change by making positive lifestyle changes. Our parks should become models of climate change best practices showcasing what is at risk and what can be done about it.

## **Effects**

Many greenhouse gases stay in the atmosphere for long periods of time. As a result, even if emissions stopped increasing, atmospheric greenhouse gas concentrations would continue to increase and remain elevated for hundreds of years. Increased GHG concentrations in the atmosphere are expected to:

- Increase Earth's average temperatures
- Influence the patterns and amounts of precipitation
- Reduce ice and snow cover, including permafrost
- Increase the acidity of oceans.
- Raise sea level

Warming temperatures contribute to sea level rise by expanding ocean water and melting mountain glaciers and ice caps. Relative sea level also depends on local changes in currents, winds, salinity and water temperature. A rise in sea level impacts Parks the most.

## **Mean Sea Level Rise**

California State Parks (DPR) is responsible for managing 114 coastal park units that include more than 340 miles of the coast. These diverse units include beaches, bluffs, coastal forests and grasslands, rivers, estuaries, and dune systems. By 2100, sea levels are projected to increase by 4 to 56 inches (10-143 cm) in areas north of Cape Mendocino and 17 to 66 in (42-167 cm) in areas south of Cape Mendocino.

Given its extensive coastal holdings, CSP has a responsibility to prepare for mean sea level rise (MSLR) and the increasing impact from extreme coastal storm events.

DPR prepared the Sea-level Rise and Extreme Event Guidance document to provide consistent and flexible guidance to State Parks staff with regard to managing coastal resources and developing new projects in the context of MSLR and extreme events.

Several provisions of the Department Operations Manual (DOM) relate to coastal and ocean processes. For instance, the Coastal Development Siting Policy (DOM 0307.3.2.1) states that it is the policy of the Department that natural coastal processes (such as wave erosion, beach deposition, dune formation, wave erosion, beach deposition, dune formation, lagoon formation, and seacliff retreat) should be allowed to continue without interference. The section states: "The Department shall not construct permanent new structures and coastal facilities in areas subject to ocean wave erosion, seacliff retreat, and unstable cliffs...", and that new structures located in areas known to be "subject to ocean wave erosion ... shall be expendable or

movable.” This policy does not yet address limiting development of structures in areas projected to be impacted by future sea-level rise and extreme events.

Similarly, the existing Department policy “Siting Facilities to Avoid Natural Hazards” (DOM 307.3.1.1) states that the Department will strive to site facilities where they will not be damaged or destroyed by natural physical processes; while general natural resources policy states that natural change will also be recognized as an integral part of the functioning of natural systems (DOM 304.1). To the extent that MSLR combined with flood events on coastal floodplains is now recognized as a potent climate change impact, the Department’s floodplain management policy, which calls for limits to development in floodplains (DOM 306.6), also applies. The department is in the process of updating these policy provisions in light of the compelling scientific evidence and emerging policy direction on this topic.

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"/>

**CRITERIA FOR DETERMINING SIGNIFICANCE**

The analysis of determining the significance of impacts of the Proposed Action to Greenhouse Gas Emissions is based on criteria **VII a & b**, described in the environmental checklist above.

**DISCUSSION**

- a) The proposed trail accessibility project would contribute a miniscule amount of GHG through the temporary use of mechanized equipment within a natural habitat, which acts as a sink for GHG. Less than significant.
- b) The proposed would not violate any federal, state or local GHG plan, policy or regulation. No impact.

## VIII. HAZARDS AND HAZARDOUS MATERIALS

### ENVIRONMENTAL SETTING

A Hazard is considered a situation that poses a level of threat to life, health, property, or environment. Most hazards are dormant or potential, with only a theoretical risk of harm; however, once a hazard becomes "active", it can create an emergency situation. A hazardous material is any item or agent (biological, chemical, radiological, and/or physical), which has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors.

Hazardous materials are defined and regulated in the United States primarily by laws and regulations administered by the U.S. Environmental Protection Agency (EPA), the U.S. Occupational Safety and Health Administration (OSHA), the U.S. Department of Transportation (DOT), and the U.S. Nuclear Regulatory Commission (NRC). Each has its own definition of a "hazardous material." (IHHM)

This section concentrates on the specific environmental concerns included in the Initial Study Checklist below.

### Emergency Response Plan

The County of Santa Cruz emergency management system functions under the Standardized Emergency Management System (SEMS). Santa Cruz County is part of the Governor's Office of Emergency Services Coastal Region

### Schools

The nearest schools to the Schwan Lake Uplands are located in adjacent neighborhoods: Shoreline Middle School; .4 mile away, Del Mar Middle School; .7 mile away, Cypress High School; .7 mile away and Live Oak Elementary School; 1 mile away. (Google Maps)

### Wildfires

Dry weather conditions, heat, wind, and abundant fuel make fire one of the highest priority natural hazards for the area. Under drought classifications, this area is considered in "extreme drought." According to California Department of Forestry and Fire, the project site is located in a high hazard severity zone.

### Cortese List:

The Hazardous Waste and Substances Sites List, also known as the Cortese List or California Superfund, is a planning document used by the State of California and its various local agencies and developers to comply with the California Environmental Quality Act requirements in providing information about the location of hazardous materials release sites. *California Government Code section 65962.5* requires the California Environmental Protection Agency to develop at least an annually updated Cortese List. (Wiki)

**Airport Safety**

The Watsonville Municipal Airport is located closest to the proposed project site at 16 miles away. Major airports: Norman Y. Mineta San Jose International Airport and Monterey Regional Airport are 33 miles and 43 miles away respectively. The Bonny Doon Village Airport is a private single-runway airport with no air traffic controller located approximately 13 miles from the project site.

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input 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) 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 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) Be located in the vicinity of a private airstrip? If so, 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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

response plan or emergency evacuation plan?

- 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?

**CRITERIA FOR DETERMINING SIGNIFICANCE**

The analysis of determining the significance of impacts of the Proposed Action to Hazards and Hazardous Materials is based on criteria **VIII a – h**, described in the environmental checklist above.

**DISCUSSION**

- a) Most construction sites use, transport or dispose of hazardous materials in the form of gasoline, oil or other mechanical waste. Therefore, the areas surrounding the construction site are at risk of exposure; however, integration of **Standard Project Requirement HH1, Spill Prevention** (See chapter 2; Table 2.1 Department of Parks and Recreation Project Requirements) into project implementation will maintain project impacts at a less than significant level.
- b) See a) above.
- c) The proposed project is located within an urban area and as stated above in the environmental setting is in close proximity to schools. See a) above.
- d) A search of the Department of Toxic Substance Control’s Envirostor Database showed no sites found within 1000 feet of the Schwan Lake Uplands. No impact.
- e) As stated in the environmental setting, the nearest airport is located 16 miles away. Therefore, the proposed project is not located within an airport land use plan or within two miles of a public airport. No impact.
- f) The proposed project is not located near a private airstrip. No impact.
- g) No part of the project would interfere with an adopted emergency response plan. No impact.
- h) The proposed project would improve an existing trail located within a coastal park. While normally receiving plentiful rainfall to sustain the riparian area, this area is classified as being in “extreme drought.” The vegetation is dry and susceptible wildfire. Integration of project requirement HH2, Fire Safety, would reduce the risk of exposing people or structures to loss due to wildfire from this project. Less than significant impact.

## IX. HYDROLOGY AND WATER QUALITY

### ENVIRONMENTAL SETTING

The proposed project is located at the east side of Schwan Lake, an area included in the Live Oak neighborhood of Santa Cruz County.

#### State Water Board

The State Water Board works in coordination with the nine Regional Water Boards to preserve, protect, enhance and restore water quality. Major areas of focus include:

- Stormwater
- Wastewater Treatment
- Water Quality Monitoring
- Wetland Protection
- Ocean Protection
- Environmental Education
- Environmental Justice
- Clean Up to Contaminated Sites, including Brownfields
- Low-impact Development
- Underground Storage Tank Cleanups
- Groundwater Protection

#### Central Coast Regional Water Quality Control Board (CCRWQCB) – Region 3

The Central Coast Region includes Santa Clara (south of Morgan Hill), San Mateo (southern portion), Santa Cruz, San Benito, Monterey, Kern (small portions), San Luis Obispo, Santa Barbara, Ventura (northern portion) counties and has 378 miles of coastline. Topographic features are dominated by a rugged seacoast and three parallel ranges of the southern Coast Mountains. Ridges and peaks of these mountains, the Diablo, Gabilan and Santa Lucia Ranges, reach up to 5,800 feet. Between these Ranges are the broad valleys of the San Benito and Salinas Rivers.

Per the requirements of the Clean Water Act (CWA), and the California Porter-Cologne Act, the CCRWQCB prepared a Water Quality Control Plan (Basin Plan) for the watersheds under its jurisdiction. The objective of the Basin Plan is to show how the quality of the surface water and the ground waters in the Central Coast Region should be managed to provide the highest water quality reasonable possible.

The Basin Plan lists the various beneficial water uses and describes the water quality that must be maintained to allow those uses. Beneficial uses and water quality objectives are combined to create Water Quality Standards. The Implementation Plan describes the programs, projects and other actions that are necessary to achieve the established standards, Plans and Policies to protect water quality. The Basin Plan also includes regional and statewide surveillance and monitoring programs.

#### Watershed Surface Water

Major watersheds in Santa Cruz County include the San Lorenzo River, Scott Creek, Soquel and Aptos creeks, Waddell and the Corralitos and Salsipuede sub-basins of the Pajaro River. Smaller watersheds in the County include Arana Gulch, Rodeo Gulch and the North Coast streams of San Vicente, Liddell, Laguna, Davenport Creek Majors Creek San Andreas, Swanton Bluffs and Baldwin and Wilder Creeks.

**Soquel Watershed:** Located between the cities of Santa Cruz and Watsonville, the Soquel Creek watershed drains an area of 42 square miles.

Major tributaries include the West Branch (Burns Laurel, Hester, Creek, Amaya Creek, Fern Gulch, Ashbury Gulch, Hinkley Creek and numerous unnamed waterways) and the Main Branch (fed by Moore's Gulch, Grover Gulch, Love Creek and Bate's Creek)

Smaller tributaries include Noble Gulch, Porter Gulch, Tannery Gulch and Borregas Creek. Principle land use in the watershed includes urban development, rural residential development, agriculture, parks and recreation (includes Schwan Lake), and mining and harvesting.

Sedimentation and impairment of important fish habitat have been identified as principle resource concerns in the watershed. Soquel Lagoon is listed on the Clean Water Act Section 303(d) List of Water Quality Limited Segments for nutrients, pathogens and sedimentation/siltation

### Ground Water

The majority of the County's water supply comes from streams and groundwater aquifers that are fed by local rainfall. Approximately 80% of the water supply comes from groundwater within permeable geologic basins (Aquifers). The County had four major groundwater aquifers: Santa Margarite, Purisima, Aromas and the Pajaro Valley. The other 20% of the water supply comes from water diverted from local streams.

### Water Quality

In addition to the City itself, the City of Santa Cruz provides water service to the Live Oak neighborhood, a portion of the City of Capitola, and limited water service along Highway 1 north of Santa Cruz. IN 2014, the tap water the City of Santa Cruz tap water met all United States Environmental Protection Agency and California drinking water health standards.

As of August 10, 2015 at the mouth of Schwan Lagoon, the Escherichia coli (E. coli) bacteria level was at 933; the maximum allowable level of bacteria is 400 CFU (colony forming units), a level that exceeds State and County body contact standards.

### Flooding

**FEMA Flood Hazard Zones:** The Federal Emergency Management Agency (FEMA) establishes base flood heights for the 100-year flood zone. The 100-year flood zone is defined as the area that could be inundated by the flood which has a one percent probability of occurring in any given year.

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 type="checkbox"/>	<input checked="" 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"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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) Substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input 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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- dam?
- j) Result in inundation by seiche, tsunami, or mudflow?

### CRITERIA FOR DETERMINING SIGNIFICANCE

The analysis of determining the significance of impacts of the Proposed Action to Hydrology and Water Quality is based on criteria **IX a – i**, described in the environmental checklist above.

### DISCUSSION

- a) The proposed project would improve an existing trail to comply with accessible standards. No part of this project would violate water quality standards or waste discharge requirements. No impact.
- b) No part of the proposed project would substantially deplete groundwater supplies or interfere with groundwater recharge. No impact.
- c) The existing drainage patterns at the project site would not be affected in a manner that would significantly increase on or off-site erosion or siltation nor would existing creeks or streams be altered by this project. Integration of standard project requirements, **Hydro1, Erosion and Sediment Control and Pollution Prevention** (See chapter 2; Table 2.1 Department of Parks and Recreation Project Requirements) into project implementation will insure impacts remain at a less than significant level.
- d) The existing drainage patterns from the project area would not be altered in a manner that would significantly increase the rate or amount of surface water that would result in on or off-site flooding.
- e) The proposed project would not create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. No impact.
- f) The proposed project would not degrade water quality. No impact
- g) Per FEMA mapping for 100-year flood zones, the proposed project would be located within a 100-year flood zone; however housing is not an element of this project. No impact.
- h) The proposed project would include construction and placement of a fiberglass stringer bridge across a drainage for accessibility. The proposed bridge is a typical open design so flood waters could flow through the structure. In addition the bridge location is wholly located within a fully vegetated State Park property. Less than significant impact.
- i) The proposed project is located within an existing designated 100-year flood zone heavily used by park visitors. The implementation of an accessible trail project would have no change to the existing condition. No impact
- j) The proposed project is located at Twin Lakes State Beach, on the California coast. While the beach area is vulnerable to inundation by seiche or tsunami, the specific

project area is primarily located in the Schwan Lake uplands beyond the beach. The implementation of an accessible trail project would have no change to the existing condition. No impact

## X. LAND USE AND PLANNING

### ENVIRONMENTAL SETTING

The Santa Cruz Area is geographically divided into several distinct communities, each with its own unique style and appeal. The Twin Lakes State Beach unit is located within the Live Oak Neighborhood, guided by the Santa Cruz County General Plan and is within the coastal zone.

The following planning documents guide development at Twin Lakes State Beach. .

- **California Coastal Act:** The proposed project lies within the Coastal Zone and is subject to the requirements of the California Coastal Act (Public Resources Code Section 30000 et seq). The Coastal Act is intended to “protect, maintain, and, where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources
- **Santa Cruz County Local Coastal Program (LCP):** The Local Coastal Program consists of land use plans, the zoning ordinance, zoning district maps, and other implementing actions which taken together meet the requirement of and implement the provisions of the Coastal Act.
- **Twin Lakes State Beach General Plan:** The park general plan directs the long-range development and management of a park by providing broad policy and program guidance. This guidance is essential to the department's managers and staff, and is of value to those organizations and individuals who have an interest in California State Parks. A California State Park must have an approved general plan before any major park facilities can be developed.

The Twin Lakes State Beach General Plan guides future land use, development acquisition and operation of the specific park unit. To help satisfy recreational needs and to manage the unit's resource values, the following actions are proposed for the Schwan Lake area (location of the proposed project):

1. Schwan Lagoon will continue to be managed at a freshwater lake as long as that appears to provide the best combination of natural, aesthetic and recreational benefits to the public.
2. The upland portion, or lagoon peninsula will be managed and developed for low-intensity recreation by providing nature trails and informal picnic tables
3. Public access on the peninsula should be developed to the edge of the lagoon for nature observation and carry-in boat use where appropriate.
4. Existing trails will be maintained and improved to provide easy access for nature walks. New trails may be considered to connect the peninsula with future county parks and local trails.

- An open-air interpretive structure, with panels for interpretation of the area's natural values will be provided.

**Habitat Conservation Plans:** A Habitat Conservation Plan, also known as an HCP, is a document that describes how landowners, public and private, will manage their activities to reduce effects on vulnerable species of plants and animals. An HCP discusses the applicant's proposed activities and describes the steps that will be taken to avoid, minimize or mitigate the "take" of species covered by the plan.

The following Habitat Conservation Plans and Natural Community Conservation Plans are in effect within the County:

- Low-Effect Habitat Conservation Plan for the City of Santa Cruz Graham Hill Water Treatment Plant, Santa Cruz County, California
- Santa Cruz Sandhills Regional Habitat Conservation Plan
- Conservation Strategy for Steelhead and Coho Salmon Habitat Conservation Plan, draft 2011
- Santa Cruz Resource Conservation District to restore approximately 10 acres of riparian and wetland habitat on four coastal watersheds in Santa Cruz County
- Interim Programmatic Habitat Conservation Plan 2011 for the incidental take of the Mount Herman June beetle and Ben Lomond spineflower.

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 checked="" type="checkbox"/>	<input 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"/>

**CRITERIA FOR DETERMINING SIGNIFICANCE**

The analysis of determining the significance of impacts of the Proposed Action to Land Use and Planning is based on criteria **X a – c**, described in the environmental checklist above.

#### **DISCUSSION**

- a) The proposed project is located wholly within the existing Schwan Lake uplands of Twin Beaches State Park; it will not divide an established community. No impact.
- b) The Twin Beaches General Plan and California State Park policies guide development throughout the Park. The Santa Cruz County Local Coastal Program guides development within the coastal zone of the park. Prior to project implementation, State Parks staff will consult with County Coastal Planners and proceed as directed to obtain and follow the pertinent permit. Less than Significant.
- c) Twin Beaches State Park is not under the guidance of a habitat conservation plan or a community conservation plan. No impact.

## XI. MINERAL RESOURCES

### ENVIRONMENTAL SETTING

The Surface Mining and Reclamation Act of 1975 (SMARA, Public Resources Code, Sections 2710-2796) provides a comprehensive surface mining and reclamation policy with the regulation of surface mining operations to assure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. SMARA also encourages the production, conservation, and protection of the state's mineral resources.

The Mineral Resources and Mineral Hazards Mapping Program (MRMHMP) provides data about California's varied non-fuel mineral resources (such as metals and industrial minerals), naturally occurring mineral hazards (such as asbestos, radon, and mercury), and information about active and historic mining activities throughout the state (California Department of Conservation, 2007).

In accordance with Public Resource Code § 5001.65, commercial exploitation of resources in the units of the state park system is prohibited.

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
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"/>

### CRITERIA FOR DETERMINING SIGNIFICANCE

The analysis of determining the significance of impacts of the Proposed Action to Mineral Resources is based on criteria **XI a & b**, described in the environmental checklist above.

### DISCUSSION

a) & b) Resource extraction is not allowed in State Park units. In addition, no known mineral resources exist within the Park; therefore, the proposed project would not result in the loss of availability of a known mineral resource nor would it result in the loss of availability of a locally important mineral resource recovery site. No impact.

## **NOISE**

### **ENVIRONMENTAL SETTING**

Twin Lakes State Beach, specifically Schwan Lake, is located just outside the border of the City of Santa Cruz in the Live Oak Neighborhood of Santa Cruz County with mixed residential, commercial and recreational uses. The trailhead leading to Schwan Lake shares a parking lot with the Simpkins Family Swim Center includes Union Pacific Railroad tracks on the east and East Cliff Drive on the west with residential neighborhoods on the north and south. In addition, Santa Cruz Harbor and the Santa Cruz Beach and Boardwalk are located within a mile and some popular beaches are located west of East Cliff drive.

### **Noise Fundamentals**

Sound is a pressure wave transmitted through the air. It is described in terms of loudness or amplitude (measured in decibels), frequency or pitch (measured in Hertz [Hz] or cycles per second), and duration (measured in minutes or hours). Noise is defined as unwanted sound and is known to have several adverse effects on people, including hearing loss, speech and sleep interference, physiological responses, and annoyance (LSA).

Loudness is measured in decibels (dB) and is typically expressed in dBA, which approximates human hearing. The human ear can generally perceive noise from 0 to 140 decibels. Sounds as faint as 0 decibels are barely audible, and then only when there are no other sounds. Ordinary conversation is about 60 dB. People can tolerate some noise, but brief exposure to intense sounds of 120 to 140 dB can threaten physical or psychological well-being. (City GP)

Ambient noise levels also known as “background noise” at a given location are normally used as a reference level to study a sound source. An increase of 3 decibels is normally not detectable; an increase of 5 dB is noticeable; and an increase of 10 dB is perceived as a doubling of sound. Noise levels are a subjective experience depending on the sensitivity of the individual, the time of day and the source.

<b>Noise Source</b>	<b>Decibels (dBA)</b>
Turbo jet engine	150
Truck without a muffler	90
Noisy class, gym, alarm clock, whistle	80
Average residence	40
Quiet room	20
Lowest audible sound	0
Source: TeachEngineering	

As loudness increases, the amount of time you can hear the sound before damage occurs decreases. Hearing protectors reduce the loudness of sound reaching the ears, making it possible to listen to louder sounds for a longer time

The table below illustrates the range of noise in dBA of construction equipment.

**Construction Noise Levels**

Pneumatic chip hammer	103-113	Crane	90-96
Jackhammer	102-111	Hammer	87-95
Concrete joint cutter	99-102	Gradeall	87-94
Skilsaw	88-102	Front-end loader	86-94
Stud welder	101	Backhoe	84-93
Bulldozer	93-96	Garbage disposal (at 3 ft.)	80
Earth Tamper	90-96	Vacuum cleaner	70
Source: CPWR – Center for Construction Research and Training			

**Airport Proximity**

The Watsonville Municipal Airport is located closest to the proposed project site at 16 miles away. Major airports: Norman Y. Mineta San Jose International Airport and Monterey Regional Airport are 33 miles and 43 miles away respectively. The Bonny Doon Village Airport is a private single-runway airport with no air traffic controller located approximately 13 miles from the project site.

**Noise Standards**

- United States Noise Control Act: 42 U.S.C. §4901 et seq. (1972)  
 The Noise Control Act of 1972 establishes a national policy to promote an environment for all Americans free from noise that jeopardizes their health and welfare. The Act also serves to (1) establish a means for effective coordination of Federal research and activities in noise control; (2) authorize the establishment of Federal noise emission standards for products distributed in commerce; and (3) provide information to the public respecting the noise emission and noise reduction characteristics of such products.  
 While primary responsibility for control of noise rests with State and local governments, Federal action is essential to deal with major noise sources in commerce, control of which require national uniformity of treatment.
- California Noise Control Act of 1973 established an Office of Noise Control that is responsible for:
  - a) Determining the psychological and physical health effects of noise.

- b) Determining the physiological effects of noise upon plant and animal life.
  - c) Monitoring noise.
  - d) Collecting and disseminating authoritative information on adverse effects of noise and of means for its control.
  - e) Developing, in cooperation with local governments, model ordinances for urban, suburban, and rural environments.
  - f) Providing assistance to local governmental entities engaged in developing and implementing noise abatement procedures.
  - g) Developing criteria and guidelines for use in setting standards for human exposure to noise.
  - h) Developing standards for the use of noise-producing objects in California.
  - i) Developing criteria for submission to the Legislature so that state agencies may require noise control in equipment purchased for state use.
- The Santa Cruz County General Plan “Noise” Element includes two objectives a) Noise Environment: to promote land uses that are compatible with each other and with the existing and future noise environments, prevent new noise sources from increasing the existing noise levels above acceptable standards and eliminate or reduce noise from existing objectionable noise sources and b) Noise Element: to educate and assist residents of Santa Cruz County in the meaning and use of this noise element.
  - Santa Cruz County Code, Chapter 8; 8.30.010 Curfew—Offensive noise.
    - (A) No persons shall, between the hours of 10:00 p.m. and 8:00 a.m., make, cause, suffer, or permit to be made any offensive noise:
      - (1) Which is made within 100 feet of any building or place regularly used for sleeping purposes; or
      - (2) Which disturbs any person of ordinary sensitivities within his or her place of residence.
    - (B) “Offensive noise” means any noise which is loud, boisterous, irritating, penetrating, or unusual, or that is unreasonably distracting in any other manner such that it is likely to disturb people of ordinary sensitivities in the vicinity of such noise, and includes, but is not limited to, noise made by an individual alone or by a group of people engaged in any business, meeting, gathering, game, dance, or amusement, or by any appliance, contrivance, device, structure, construction, ride, machine, implement, instrument or vehicle. [Ord. 4001 § 1, 1989].
  - California State Park Laws were established to protect the park resources, to administer the parks and to maintain a park atmosphere. To insure peace and adequate rest for visitors:

- a) No person shall disturb others in sleeping quarters or in campgrounds between the hours of 10 p.m. and 6 a.m. daily.
- b) No person shall, at any time, use outside machinery or electronic equipment including electrical speakers, radios, phonographs, televisions, or other devices, at a volume which is, or is likely to be, disturbing to others without specific permission of the Department.
- c) No person shall operate an engine driven electric generator which emits sound which is, or is likely to be, disturbing to others between the hours of 8 p.m. and 10 a.m. without permission of the Department.

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
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 noise 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"/>

**CRITERIA FOR DETERMINING SIGNIFICANCE**

The analysis of determining the significance of impacts of the Proposed Action to Noise is based on criteria **XII a – d**, described in the environmental checklist above.

## **DISCUSSION**

- a) Construction noise levels at and near the project area will fluctuate, depending on the type and number of construction equipment operating at any given time, and will exceed ambient noise standards in the immediate vicinity of the work for brief periods of time. The distance from schools, the swim center and residences adjacent to the park to the proposed work sites is sufficient to prevent an objectionable level of noise. However, depending on the specific construction activities being performed, short-term increases in ambient noise levels could result in speech interference at the work site and a potential increase in annoyance to visitors and staff. Integration of **Standard Project Requirement, Noise** (See chapter 2; Table 2.1 Department of Parks and Recreation Project Requirements) will maintain noise levels at a less than significant level.
- b) Construction activity would not involve the use intensive construction techniques that could generate significant ground vibration or noise. Minor vibration immediately adjacent to backhoes and heavy equipment would only be generated on a short-term basis. Therefore, ground-borne vibration or noise generated by the project would have a less than significant impact.
- c) Once the proposed project is completed, all related construction noise will disappear. Nothing within the scope of the proposed project will result in a substantial permanent increase in ambient noise levels. No impact.
- d) See a) above.
- e & f) The proposed project is located within a State Park. As stated in the environmental setting above, the nearest public airport is 16 miles away; the nearest private airport is 13 miles away. No impact

## XII. POPULATION AND HOUSING

### ENVIRONMENTAL SETTING

Located just outside the boundaries of the City of Santa Cruz, Twin Lakes State Beach and more specifically, Schwan Lake Upland is part of the Live Oak Neighborhood and surrounded by residential and commercial uses.

Live Oak has no downtown center, but 17th Avenue between Highway 1 and East Cliff Drive is the address for several schools, the Santa Cruz Live Oak Grange Hall, the Fire Department, a Santa Cruz County Sheriff's Department, the Family Swim Center, and the majority of Live Oak's business establishments.

#### Population

The population was 17,158 at the 2010 census.

#### Housing

According to the 2010 Census, there were 6,726 housing units at an average density of 2,074.2 per square mile (800.9/km<sup>2</sup>), of which 3,601 (55.9%) were owner-occupied, and 2,840 (44.1%) were occupied by renters

There is no housing within the park unit

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
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 housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**CRITERIA FOR DETERMINING SIGNIFICANCE**

The analysis of determining the significance of impacts of the Proposed Action to Population and Housing is based on criteria **XIII a – c**, described in the environmental checklist above.

**DISCUSSION**

a,b,c) The proposed project does not have a housing component and all work would take place within the confines of the park boundary, with no additions or changes to the existing local infrastructure. It would neither modify nor displace any existing housing and would displace no one, either temporarily or permanently. Jobs are not expected to be generated as a result of this project therefore it will have no impact on population growth or housing.

### XIII. PUBLIC SERVICES

#### ENVIRONMENTAL SETTING

Public services include fire and police protection, schools, parks, and other public facilities. The proposed project location at Schwan Lake is part of the Live Oak Neighborhood of Santa Cruz County.

#### Police

DPR rangers assigned to Twin Beaches SP are Peace Officer Standards and Training (POST) certified law enforcement officers and provide year round law enforcement within park unit boundaries

The California Highway Patrol (CHP) serves as the primary law enforcement presence on interstates, state routes, and county roads

#### Fire

CALFIRE has a legal responsibility to provide fire protection on all State Responsibility Area (SRA) lands, which are defined based on land ownership, population density and land use.

Although CalFire has fire responsibility for state park lands, the Cal Fire, "Fire Hazard Severity Zones" mapping, the Twin Lakes State Beach is under a "Local Responsibility – Unincorporated" area. The local Responsibility Area mapping shows the Schwan Lake Uplands area as "High Risk" for fire.

#### Parks

Numerous street or neighborhood parks are located in the vicinity of Twin Lakes State Beach and the Schwan Lake Uplands. These parks provide important short visit recreational opportunities for local residents.

#### Schools

The nearest schools to the Schwan Lake uplands are located in adjacent neighborhoods: Shoreline Middle School; .4 mile away, Del Mar Middle School; .7 mile away, Cypress High School; .7 mile away and Live Oak Elementary School; 1 mile away. (Google Maps)

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a) Result in significant environmental impacts from construction associated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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:

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

**CRITERIA FOR DETERMINING SIGNIFICANCE**

The analysis of determining the significance of impacts of the Proposed Action to Public Services is based on criteria **XIV a**, described in the environmental checklist above.

**DISCUSSION**

- a) The proposed project would improve a section of the trail system within the Schwan Lake uplands of Twin Lake SB to comply with the Americans with Disabilities Act. No component of the proposed project would contribute to an increase of visitation and the level of required public services is expected to remain relatively static

**Fire**

Use of construction equipment around flammable annual vegetation presents an increased fire risk that could result in additional demands on CDF and local fire response teams. Any impact on services would be temporary; nothing in the project scope would contribute to the need for an increase in the existing level of public service. **Integration of Project Requirement Hazmat 2, Fire Safety** (See chapter 2; Table 2.1 Department of Parks and Recreation Project Requirements) combined with the availability of on-site fire suppression equipment and support from State Park Rangers, will maintain the potential impact on Fire Protection services to a less than significant level.

**Police**

As noted in the Environmental Setting, DPR rangers with law enforcement authority patrol Twin Lakes SB. DPR rangers have full law enforcement authority and only require assistance from local police as backup for unusual situations. No additional demands on rangers or local police are expected as a result of this project. No impact.

**Schools, Parks or other Public Facilities**

The proposed project would improve existing park facilities. There would be no impacts to schools, other parks, or other public facilities, as a result of the proposed project.

**XIV. RECREATION**

**ENVIRONMENTAL SETTING**

**County**

The Coastal Recreation policies cover the protection of coastal access and recreational land uses along the 42 miles of Santa Cruz County coastline. Programs include improving vehicular and pedestrian access to beach areas and expanding Coastal Recreation through the General Plan and the Local Coastal Program Land Use Plan.



**City**

Santa Cruz offers residents and visitors a wide range of parks, open space, beaches, trails, and recreational opportunities. The City has responsibility for management, maintenance and operation of over 1,700 acres of parks and open space lands, and various community/recreational facilities, and oversees development of new parks and improvements within

City-owned parks, open space, and community facilities.

**Twin Lakes State Beach**

Twin Lakes State Beach consists of 5 physical areas: Seabright Beach, East Beach (Seventh Avenue), Schwan’s Lagoon and Upland, Fourteenth Avenue Beach and Bonita Lagoon and the Fourteenth Avenue Maintenance Yard.

Excluding the Maintenance Yard, day use activities include: windsurfing/surfing, fishing, beach activities (sunning, picnics, swimming, sports, etc.), boating and hiking. Facilities consist of restrooms, showers and drinking fountains.

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

substantial physical deterioration of the facility would occur or be accelerated?

- b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

### CRITERIA FOR DETERMINING SIGNIFICANCE

The analysis of determining the significance of impacts of the Proposed Action to Recreation is based on criteria **XVI a & b**, described in the environmental checklist above.

### DISCUSSION

- a) The proposed project to improve an existing trail in the Schwan Lake upland area to comply with the Americans with Disabilities Act is scheduled to take 3-5 months. Some people could decide to visit nearby parks rather than recreate in the Schwan Lake uplands area; however, construction is temporary. Visitors would quickly return to Twin Lakes State Beach and would not increase use at neighborhood parks or other recreational facilities in a manner that would cause substantial accelerated deterioration. No impact.
- b) The proposed project proposes to improve an existing multi-use recreational trail. While the project would not expand the trail, it would construct a bridge and improve areas for accessible use. All State Park projects are designed to impose the least possible effect on the environment through the use of Best Management Practices and Project Requirements (see chapter 2, Project Description). However, as humans are part of the environment, to decrease frustration of park visitors and the disappointment of hikers who have travelled a distance, Integration of Specific **Project Requirements Recreation 1 & 2, News Release & Temporary Trail Closure Signage** (See chapter 2; Table 2.1 Department of Parks and Recreation Project Requirements), will maintain project impacts at a less than significant level.

## **XV. TRANSPORTATION/TRAFFIC**

### **ENVIRONMENTAL SETTING**

Access to this park requires, at the very least, use of City of Santa Cruz streets. In some instances, park visitors could use local State Highways 1, 9 and/or 17; of which segments travel through Santa Cruz.

#### Level of Service

Many jurisdictions use “level of service” (LOS) standards to measure potential transportation impacts. LOS measures vehicle delay at intersections and on roadways and is represented as a letter grade A through F. LOS A represents free flowing traffic, while LOS F represents congested conditions.

Caltrans has jurisdiction over state highways and tries to maintain a target LOS at the transition between LOS C and D; Santa Cruz County considers LOS C the objective and LOS D as the minimum acceptable.

#### Air Traffic

The Watsonville Municipal Airport is located closest to the proposed project site at 16 miles away. Major airports: Norman Y. Mineta San Jose International Airport and Monterey Regional Airport are 33 miles and 43 miles away respectively. The Bonny Doon Village Airport is a private single-runway airport with no air traffic controller located approximately 13 miles from the project site.

#### Public Transportation

##### **Pedestrian/Bicycle –**

Based on the bicycle, pedestrian and motor vehicle data collected in May 2012, findings indicate:

- The largest number of bicyclists observed during this count were at intersections in the City of Santa Cruz and Mid-county, including Capitola
- The top three intersections with the greatest number of bicyclists that were counted during this time period were Bay Dr. and High St.(UCSC); Seabright Ave. and Murray St.; and Front St. and Laurel St.
- There is an overall upward trend over the last 10 years in the bicycle ridership for Santa Cruz County
- Average mode share at the 20 locations measured was 93.6% motor vehicle, 2.7% bike and 3.7% pedestrian.
- The highest bicycle mode share (10.9%) was on Bay Dr (south of High St) in the City of Santa Cruz.
- *Santa Cruz County May 2012 Bike and Pedestrian Count Report 2*

- The highest pedestrian mode share (20.2%) was on Maple Ave (west of Union St) in the City of Watsonville.

**Bus/Rail**

Santa Cruz Metropolitan Transit District (SCMTD), or simply Santa Cruz METRO, provides bus service throughout Santa Cruz County, California.

Santa Cruz METRO also operates the Amtrak Thruway Motorcoach Highway 17 Express service between Santa Cruz (city) and San Jose Amtrak Station, thanks to a partnership with Amtrak California, Capitol Corridor, and the Santa Clara Valley Transportation Authority.

Parking

Trail access and parking to the north shore of Schwan Lake is available behind the Simpkins Family Swim Center, part of the County of Santa Cruz Parks, Open Space and Cultural Services Department on 17<sup>th</sup> Ave. ..

Parking near Twin Lakes State Beach is limited. Almost all of the residential streets east of the harbor and near the beach along East Cliff Drive are part of the Live Oak Parking Permit Streets operated by Santa Cruz County

Emergency Access

The County of Santa Cruz emergency management system functions under the Standardized Emergency Management System (SEMS). Santa Cruz County is part of the Governor's Office of Emergency Services Coastal Region

The proposed project is located wholly within the Twin Lakes State Beach, Schwan Lake uplands portion of the park.

	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

freeways, pedestrian and bicycle paths, and mass transit?

- |  |                          |                          |                                     |                                     |
|--|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| b) Exceed, individually or cumulatively, the level of service standards established by the county congestion management agency for designated roads or highways?                       | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c) Cause 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) Contain a design feature (e.g. sharp curves or a dangerous intersection) or incompatible uses (e.g. farm equipment) that would substantially increase hazards?                      | <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"/> |

**CRITERIA FOR DETERMINING SIGNIFICANCE**

The analysis of determining the significance of impacts of the Proposed Action to Transportation/Traffic is based on criteria XVI a – g, described in the environmental checklist above.

**DISCUSSION**

- a) The proposed project is located at the Schwan Lake uplands of Twin Lakes State Beach; however, the proposed ADA-compliant van parking space would be located within a shared-use parking area. Although the parking space is in the shared use area, anyone could use it at any time with the appropriate ADA placard; therefore, there would be no impact with an existing applicable circulation plan. No impact.
- b) The proposed project would require the movement in and out of the park of construction equipment as well as construction crew personal vehicles. The crew for this project would be quite small and the construction vehicles would stay on-site as long as needed. However, due to the location in an urban neighborhood and the relatively small width of the streets could create a temporary, short-term effect on the level of service to residential traffic. Due to the temporary nature of this impact, it would be considered less than significant.

- c) No part of the proposed project would create a change in air traffic patterns. No impact.
- d) The proposed project improves an existing trail to ADA-compliant standards, no part of the project would substantially increase hazards with a curve or dangerous intersection. No impact.
- e) As discussed in Section VIII, Hazards and Hazardous Materials Discussion bullet g), this project would not interfere with an emergency response plan. No Impact.
- f) The majority of the project is located within a State Park, outside of local jurisdiction and away from adopted policies, plans or programs for public transit. No impact.

## XVI. UTILITIES AND SERVICE SYSTEMS

### ENVIRONMENTAL SETTING

State-provided amenities at Twin Lakes State Beach that use utility systems include restrooms, drinking fountains, and showers.

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 the construction of which could cause significant environmental effects the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Would the construction of these facilities cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

to solid waste?

### **CRITERIA FOR DETERMINING SIGNIFICANCE**

The analysis of determining the significance of impacts of the Proposed Action to Utilities and Service Systems is based on criteria **XVII a – h**, described in the environmental checklist above.

### **DISCUSSION**

- a) No wastewater would be produced by this project. No impact.
- b) No wastewater would be produced by this project. No impact.
- c) 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.
- d) No outside source of water would be required during project implementation. No impact.
- e) No wastewater will be produced by this project. Project will occur during daytime work hours over a short duration (no more than 2 months). No impact.
- f) 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
- g) No impact; no solid waste would be generated. No impact

## CHAPTER 4 – MANDATORY FINDINGS OF SIGNIFICANCE

Would the project	Potentially Significant Impact	Less than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have the potential to 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"/>
c) 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"/>
d) 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 its plant and animal communities. It has been determined that the proposed project has the potential to temporarily degrade the quality of the environment and adversely affect special-status animal species. However, full integration of all project requirements into project designs and implementation will avoid or reduce these potential impacts to a less than significant level.
- b) The proposed project has been evaluated for potential significant impacts to cultural resources of the Park and its immediate environment. It has been determined that, full integration of all project requirements into design and implementation will result in no examples of significant cultural resources being significantly impacted by the project. Less than significant impact.

- c) DPR often has smaller maintenance programs and rehabilitation projects planned for a park unit. At this time, no other projects, other than routine maintenance, are planned for the proposed project area in the foreseeable future. Additionally, impacts from other environmental issues addressed in this evaluation do not overlap in such a way as to result in cumulative impacts that are greater than the sum of the parts. Less than significant impact
  
- d) The proposed 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.

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## **Utilities**

## CHAPTER 6 – REPORT PREPARATION

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## APPENDIX A – MAPS & PLANS

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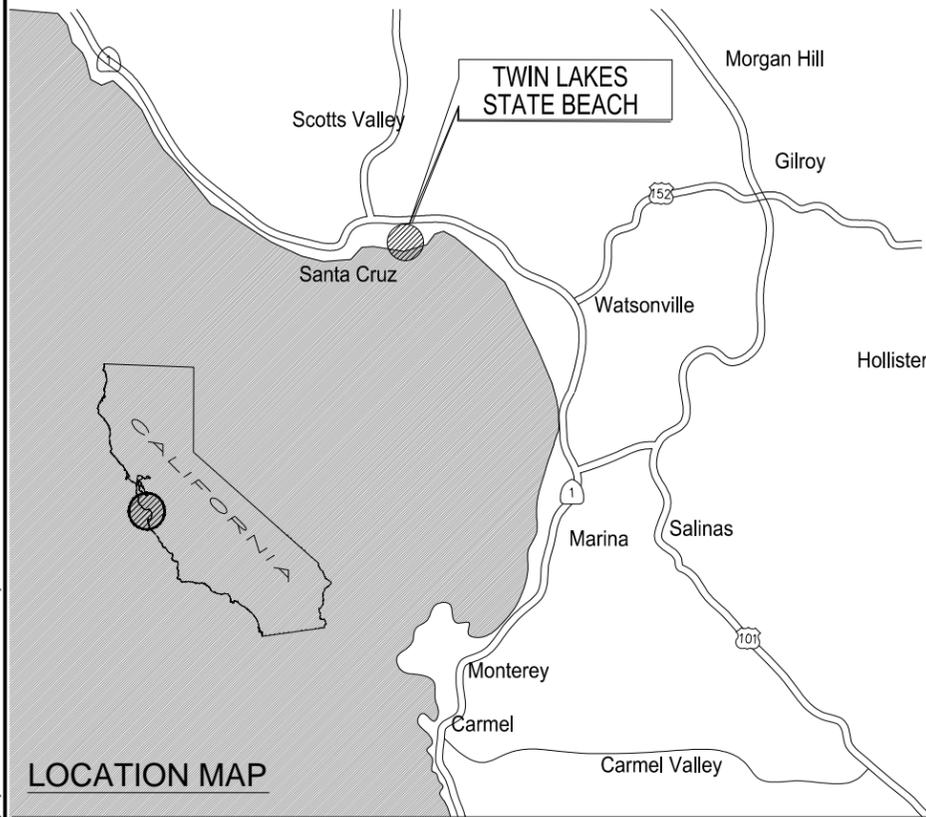
# CALIFORNIA DEPARTMENT OF PARKS AND RECREATION ACQUISITION AND DEVELOPMENT DIVISION TWIN LAKES STATE BEACH

CSFM FILE NUMBER:



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

## SCHWAN LAKE PARK TRAIL ACCESSIBILITY IMPROVEMENTS



THIS PROJECT WILL UPGRADE THE EXISTING SCHWAN LAKE TRAIL TO DEPARTMENTAL ACCESSIBILITY STANDARDS. SPECIFIC UPGRADES INCLUDE:

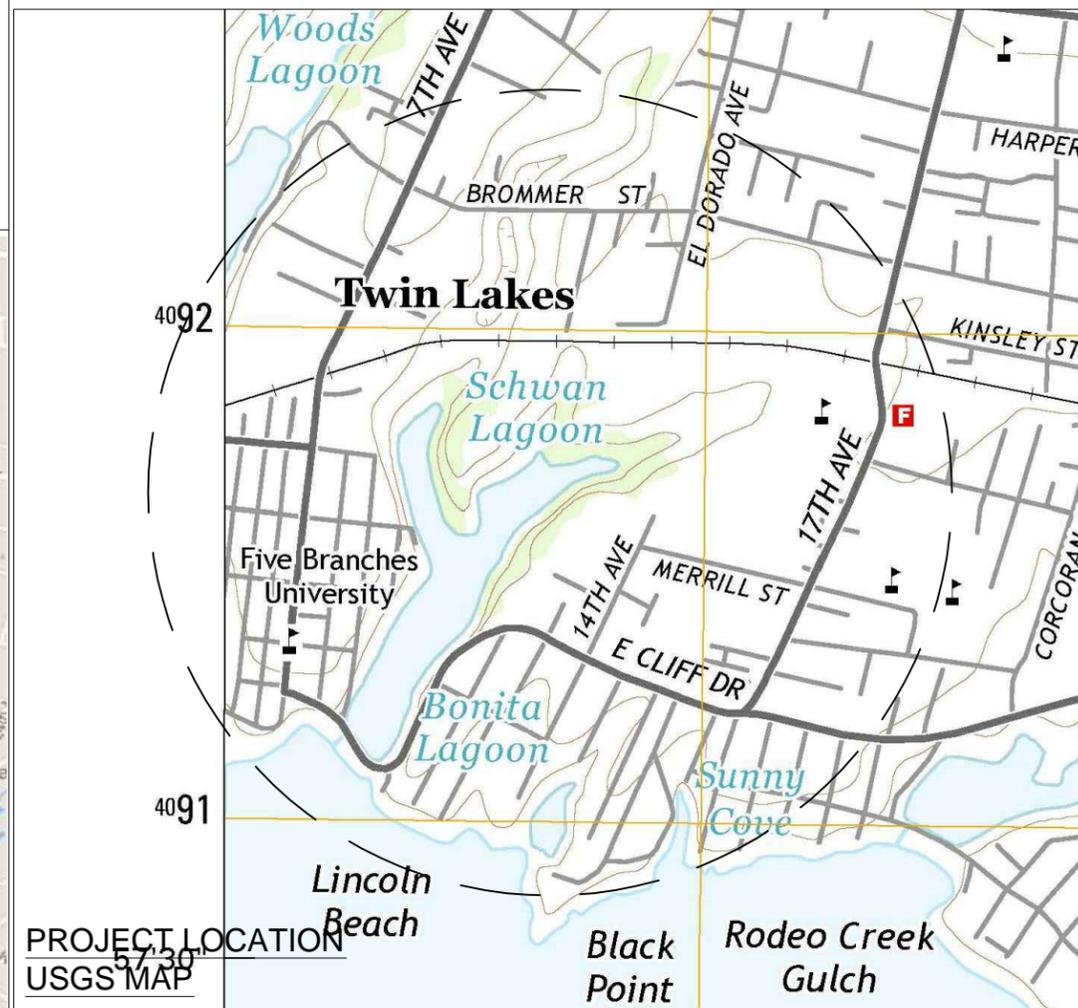
- CONSTRUCT NEW CONCRETE ACCESSIBLE PARKING STALL IN EXISTING PARKING LOT AT TRAILHEAD (BEHIND SIMPKINS SWIM CENTER)
- UPGRADE APPROXIMATELY 1650 OF EXISTING TRAIL/ROAD AND CONSTRUCT 520 LF OF NEW REROUTE TO ACCESSIBILITY STANDARDS
- INSTALL TWO (2) NEW ALL-SEASON FIBERGLASS PEDESTRIAN BRIDGE CROSSINGS OVER CREEK (70' AND 40')
- CONSTRUCT NEW PICNIC AREA WITH TABLE
- CONSTRUCT NEW LAKE OVERLOOK
- DECOMMISSION AND RESTORE APPROXIMATELY 6000 SF OF HIGHLY DEGRADED TRAIL ROUTES AND DENUDED AREAS ALONG THE SHORELINE
- INSTALL BENCH SEATING AT SELECT LOCATIONS
- INSTALL NEW INTERPRETIVE, REGULATORY AND DIRECTIONAL SIGNAGE

PROJECT ADDRESS:

2600 East Cliff Drive  
Santa Cruz, CA 95062

SHEET	SHEET NO.
COVER SHEET	G-1
CONSTRUCTION PLAN	L-1
CONSTRUCTION PLAN	L-2
DETAIL SHEET	D-1
DETAIL SHEET	D-2
DETAIL SHEET	D-3
DETAIL SHEET	D-4
DETAIL SHEET	D-5
DETAIL SHEET	D-6
DETAIL SHEET	D-7

### PROJECT SCOPE



### DRAWING SHEET INDEX

- 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 REPRESENTATIVE FOR RESOLUTION BEFORE PROCEEDING WITH THAT PORTION OF THE WORK.
- 3-ALL WORK SHALL COMPLY WITH THE CURRENT EDITION 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 ENERGY CODE.  
2013 EDITION OF THE CALIFORNIA ELECTRICAL CODE.  
2013 EDITION OF THE CALIFORNIA PLUMBING CODE.  
2013 EDITION OF THE CALIFORNIA MECHANICAL CODE.  
2013 EDITION OF THE CALIFORNIA GREEN BUILDING STANDARDS CODE.  
2013 ADA STANDARDS FOR ACCESSIBLE DESIGN
- 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 REPRESENTATIVE FOR WRITTEN RESOLUTION.
- 6-THE CONTRACTOR SHALL NOT SCALE THE DRAWINGS, BUT SHALL RELY ONLY ON THE WRITTEN DIMENSIONS GIVEN. IF A DISCREPANCY OCCURS OR NO DIMENSION IS GIVEN, THE CONTRACTOR SHALL NOTIFY THE STATE REPRESENTATIVE FOR WRITTEN CLARIFICATION BEFORE PROCEEDING WITH THAT PORTION OF THE WORK.

### GENERAL NOTES



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CERTIFICATION # \_\_\_\_\_

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CHECKED: \_\_\_\_\_  
DATE: 1-20-14

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DATE

DATE

TWIN LAKES STATE BEACH  
SCHWAN LAKE PARK TRAIL  
ACCESSIBILITY IMPROVEMENTS  
COVER SHEET

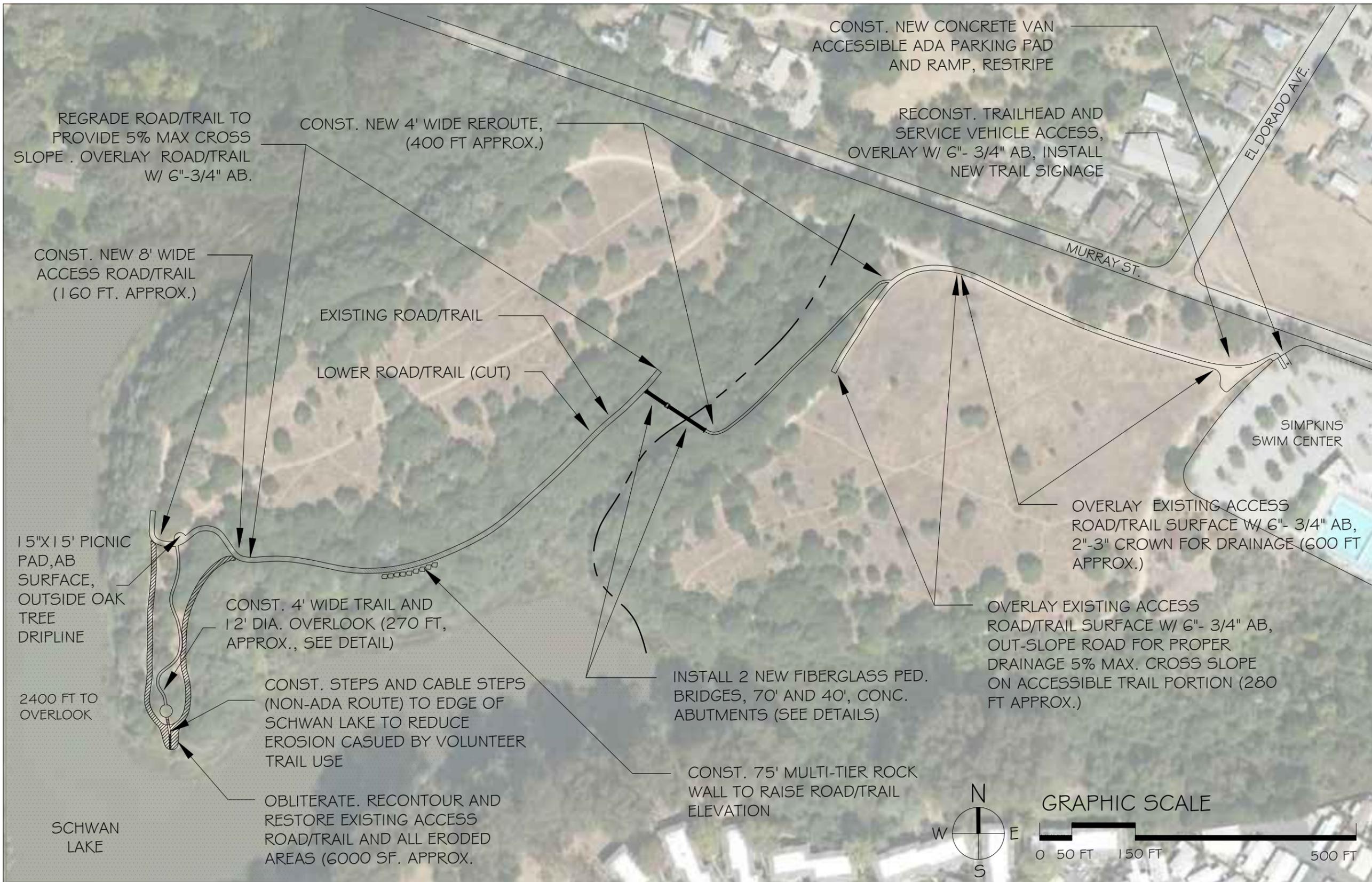
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SHEET NO.  
G-1

1 OF 5



ACCESSIBILITY SECTION  
 One Capitol Mall  
 Sacramento, CA  
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TWIN LAKES STATE BEACH  
 SCHWAN LAKE PARK TRAIL  
 ACCESSIBILITY IMPROVEMENTS  
 LAYOUT SHEET

DRAWING NO. XXXXX.XXX

SHEET NO. L-1  
 2 OF 10

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ACCESSIBILITY SECTION  
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 Sacramento, CA  
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 ACCESSIBILITY SECTION  
 CERTIFICATION # NA  
 Reviewed by NA Date NA

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TWIN LAKES STATE BEACH  
 SCHWAN LAKE PARK TRAIL  
 ACCESSIBILITY IMPROVEMENTS  
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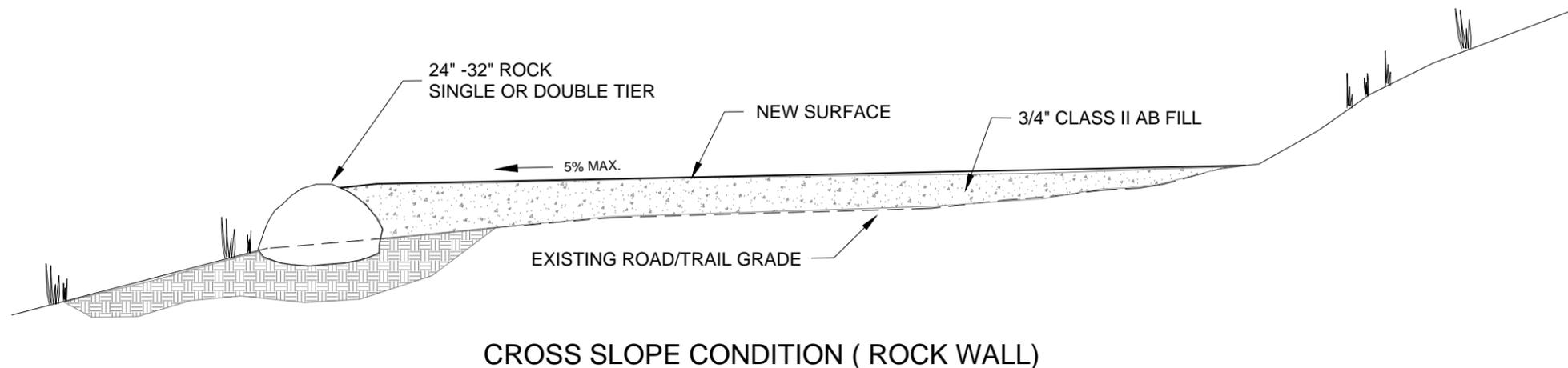
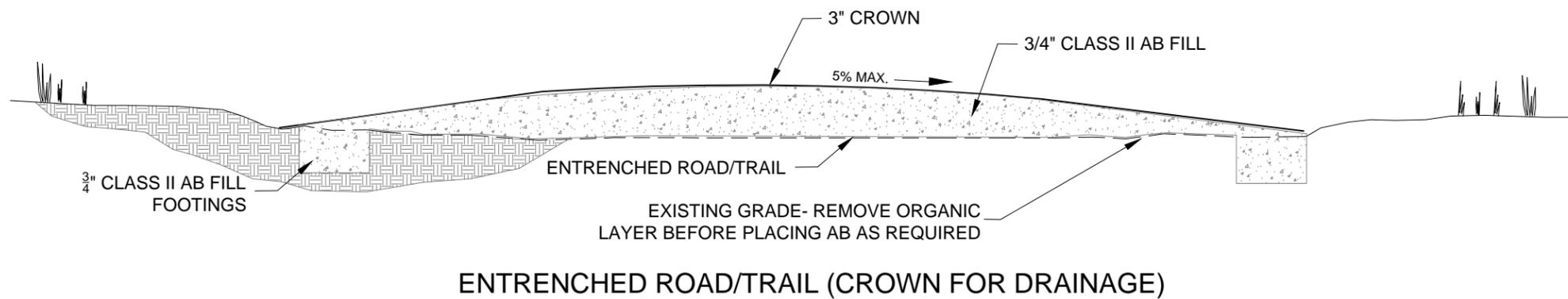
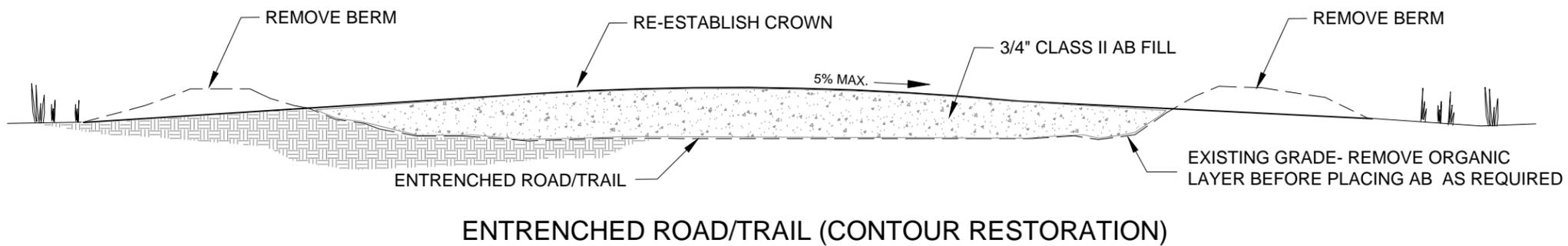
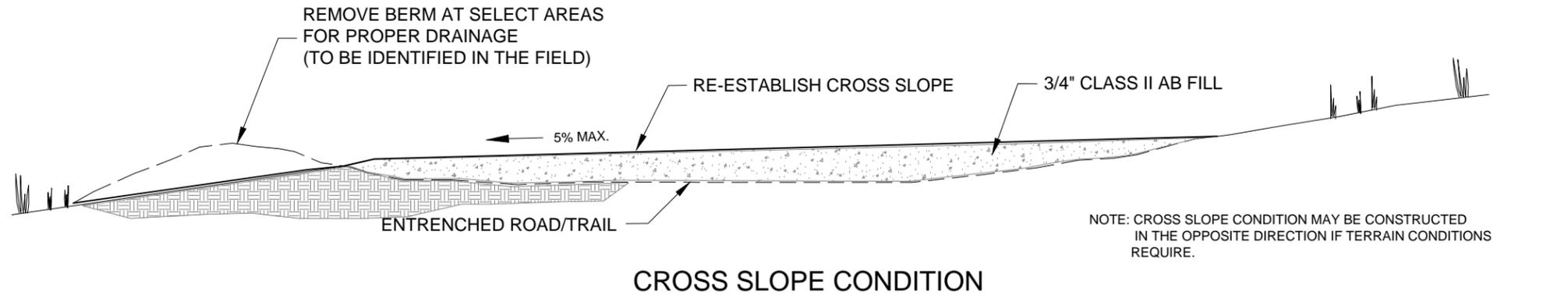
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 CERTIFICATION # \_\_\_\_\_

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TWIN LAKES STATE BEACH  
 SCHWAN LAKE PARK TRAIL  
 ACCESSIBILITY IMPROVEMENTS  
**DETAIL SHEET**

DRAWING NO.  
 XXXXX.XXX

SHEET NO.

**D-1**

4 OF 10



ACCESSIBILITY SECTION  
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 CERTIFICATION # \_\_\_\_\_  
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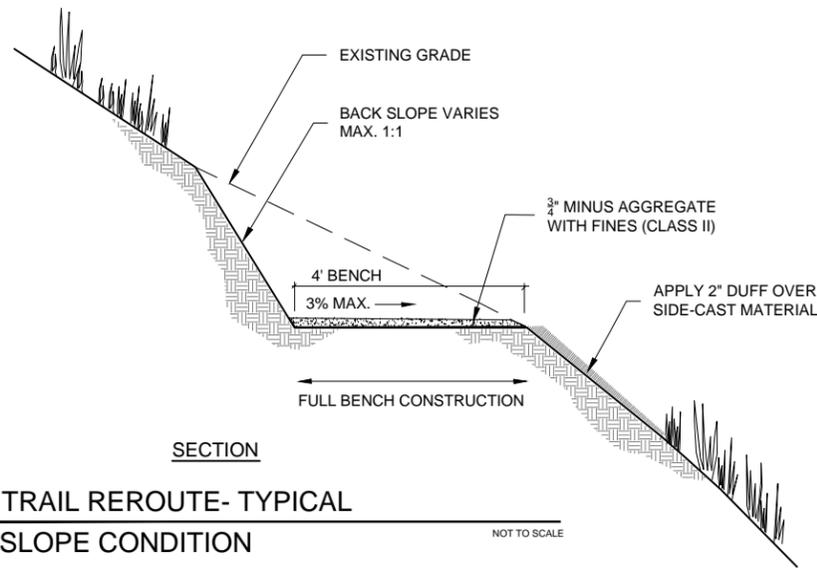
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REVISIONS	
NO.	DATE

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 ACCESSIBILITY IMPROVEMENTS  
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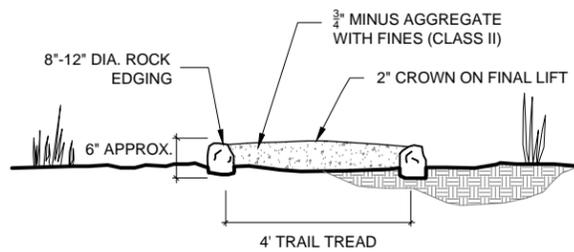
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 5 OF 10



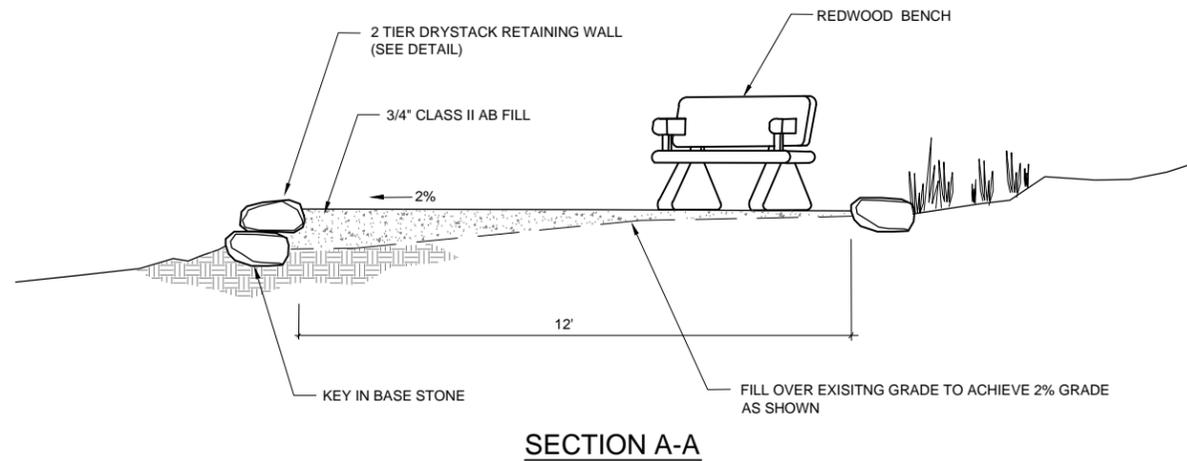
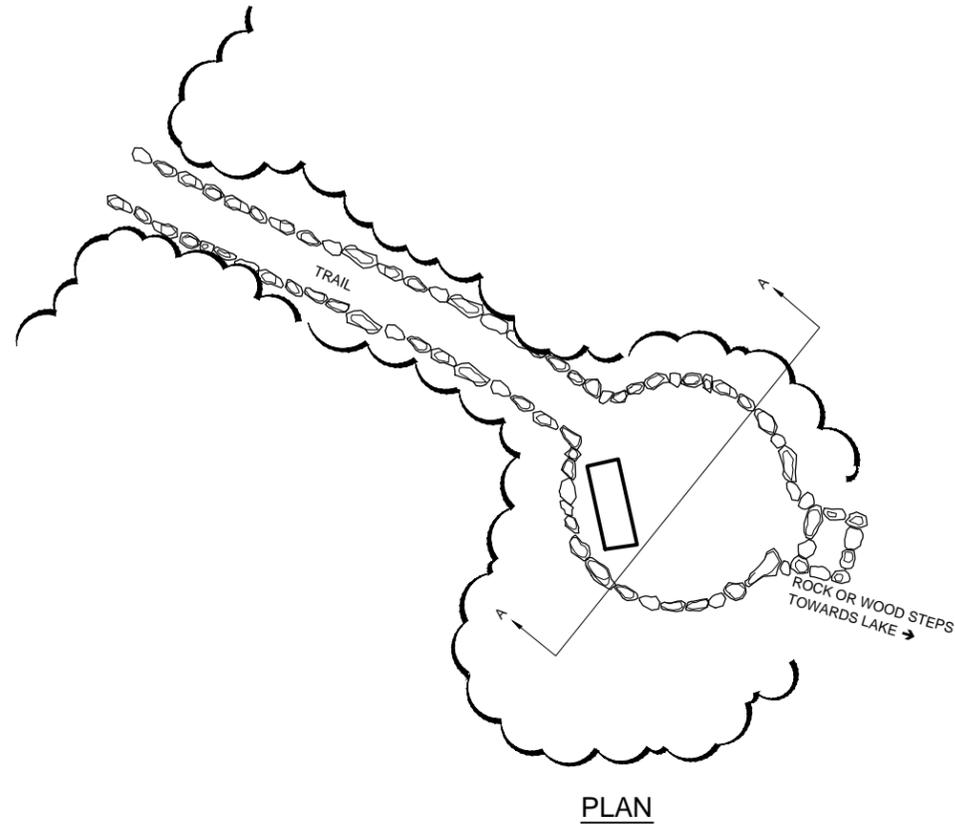
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**SLOPE CONDITION**  
 NOT TO SCALE

NOTES:

- CONSTRUCT PAVING IN 3" LIFTS. WET AND COMPACT EACH LIFT SEPARATELY TO 90%
- ADD NATIVE SOIL TO FINAL LIFT (QUANTITIES DETERMINED IN THE FIELD)
- 3% MAX. CROSS SLOPE ON CROWNED TRAILS
- GEO-FABRIC TO BE INSTALLED BASED ON SUB-GRADE CONDITIONS (AS DETERMINED IN THE FIELD)



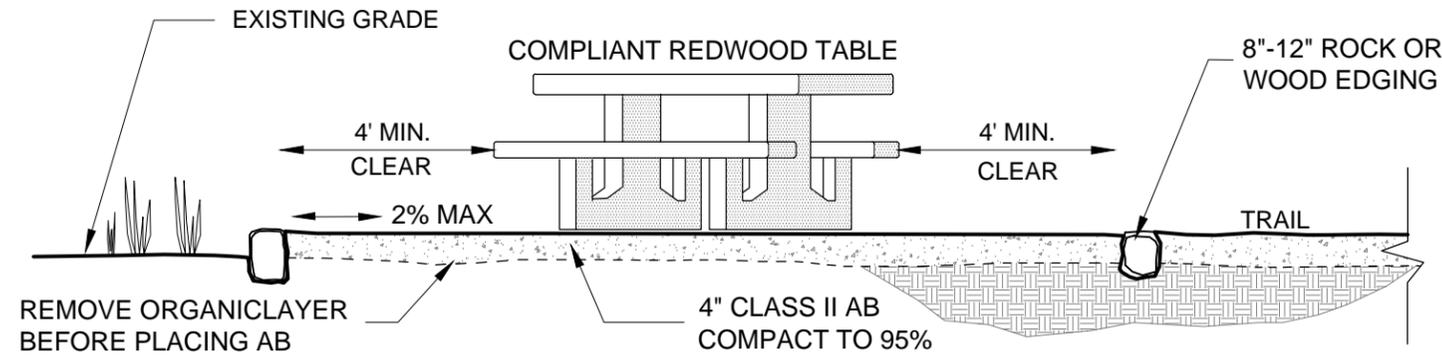
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**OVERLOOK**  
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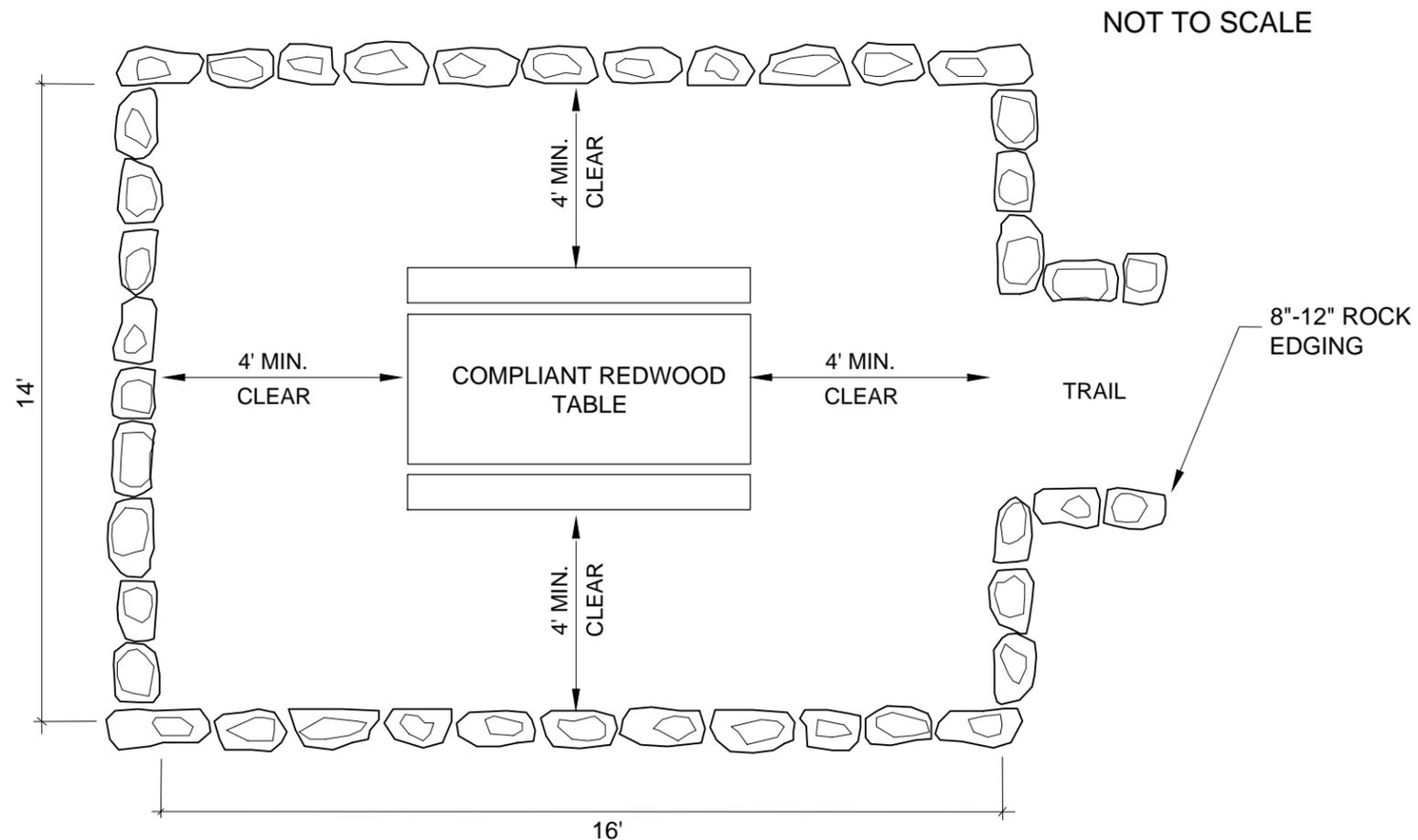


ACCESSIBILITY SECTION  
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SECTION

ADA COMPLIANT PICNIC SITE



ADA COMPLIANT PICNIC SITE LAYOUT

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 CERTIFICATION # \_\_\_\_\_  
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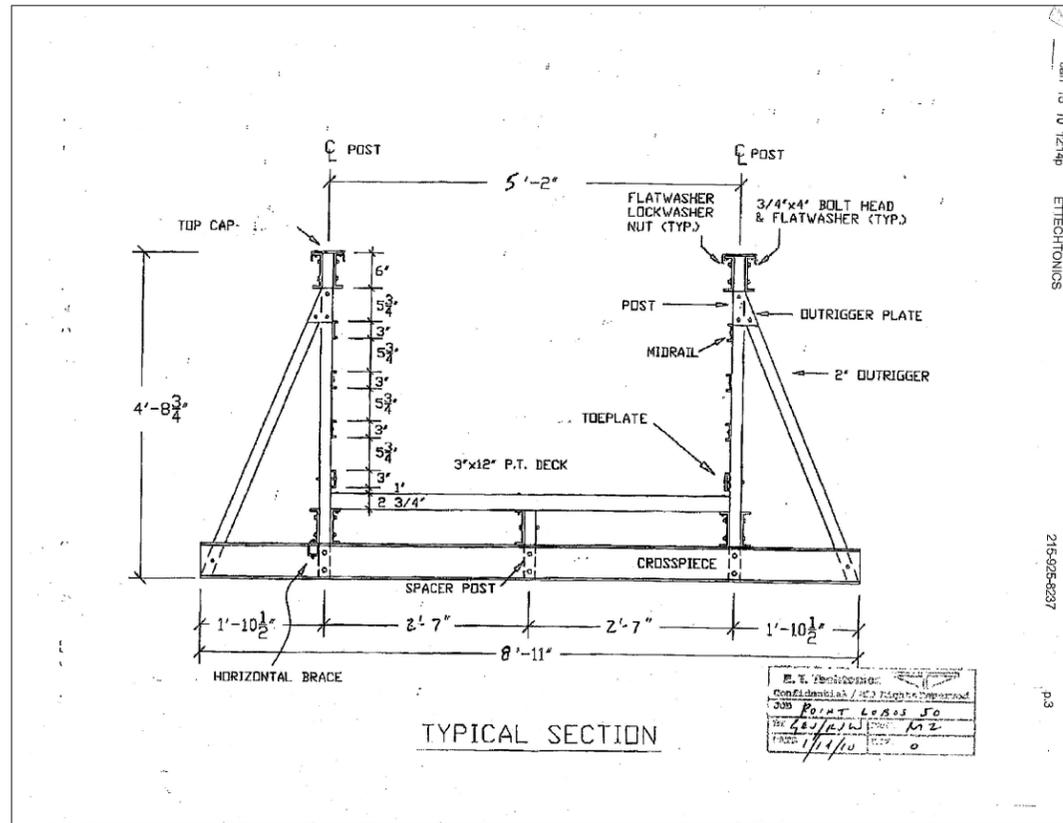
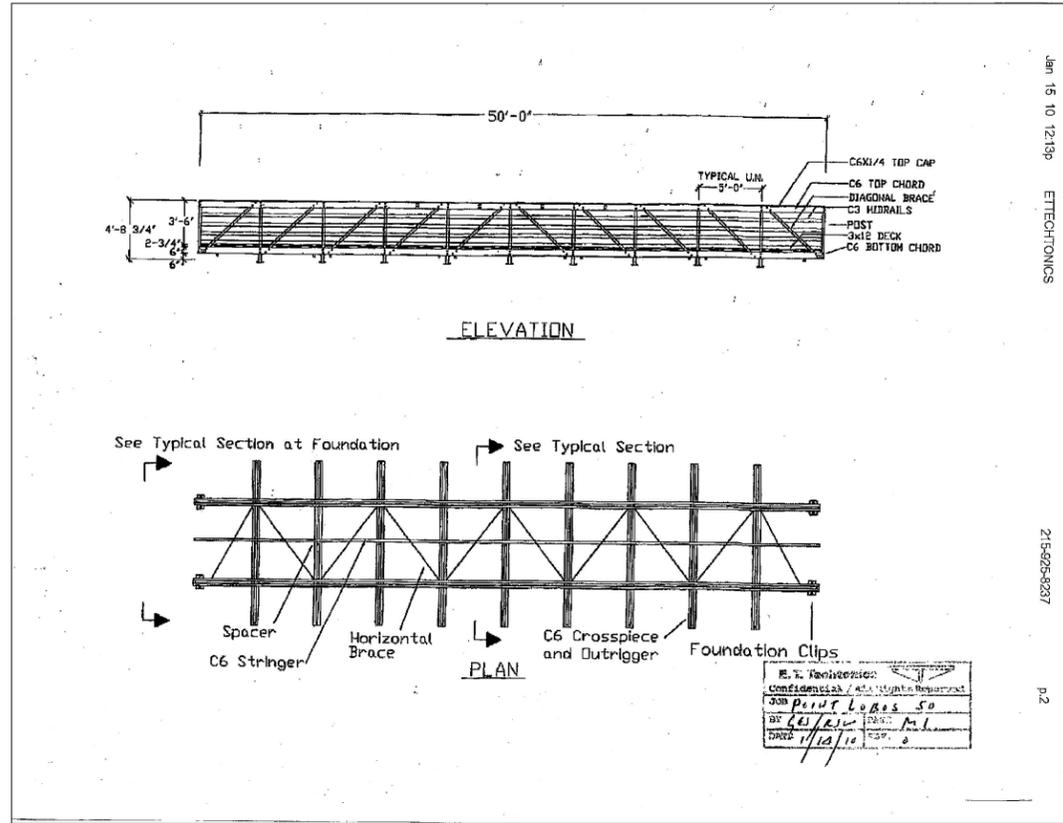
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TWIN LAKES STATE BEACH  
 SCHWAN LAKE PARK TRAIL  
 ACCESSIBILITY IMPROVEMENTS  
 DETAIL SHEET

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SHEET NO.  
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# FIBERGLASS BRIDGE DETAILS AND PHOTOS

NOT TO SCALE



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

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SCHWAN LAKE PARK TRAIL  
ACCESSIBILITY IMPROVEMENTS  
DETAIL SHEET

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SHEET NO.  
D-4

7 OF 10



ACCESSIBILITY SECTION  
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Sacramento, CA  
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CERTIFICATION # \_\_\_\_\_

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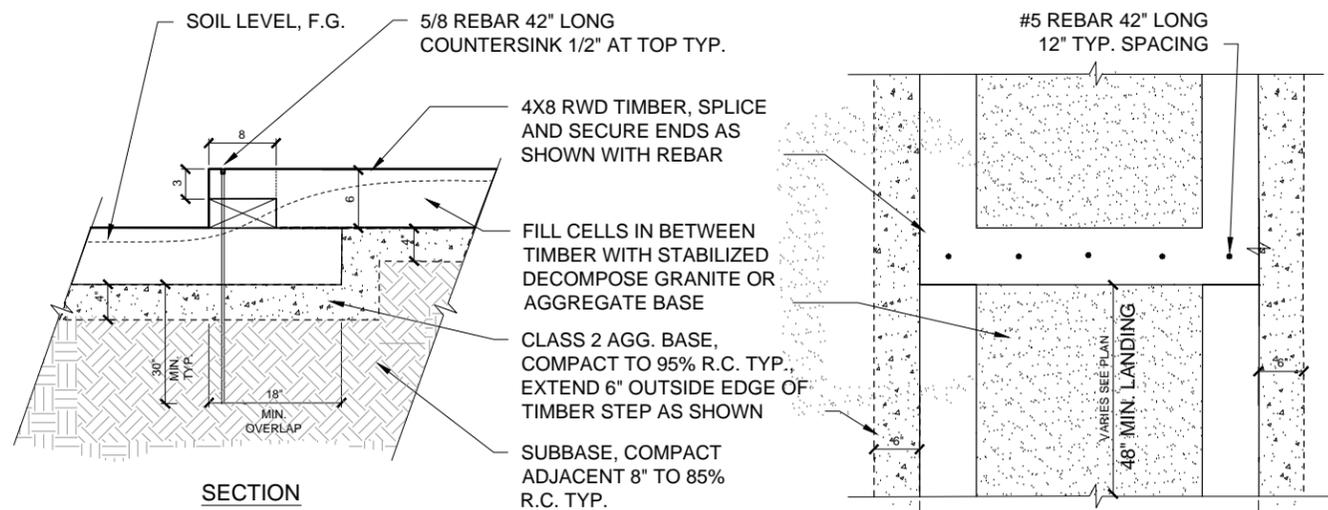
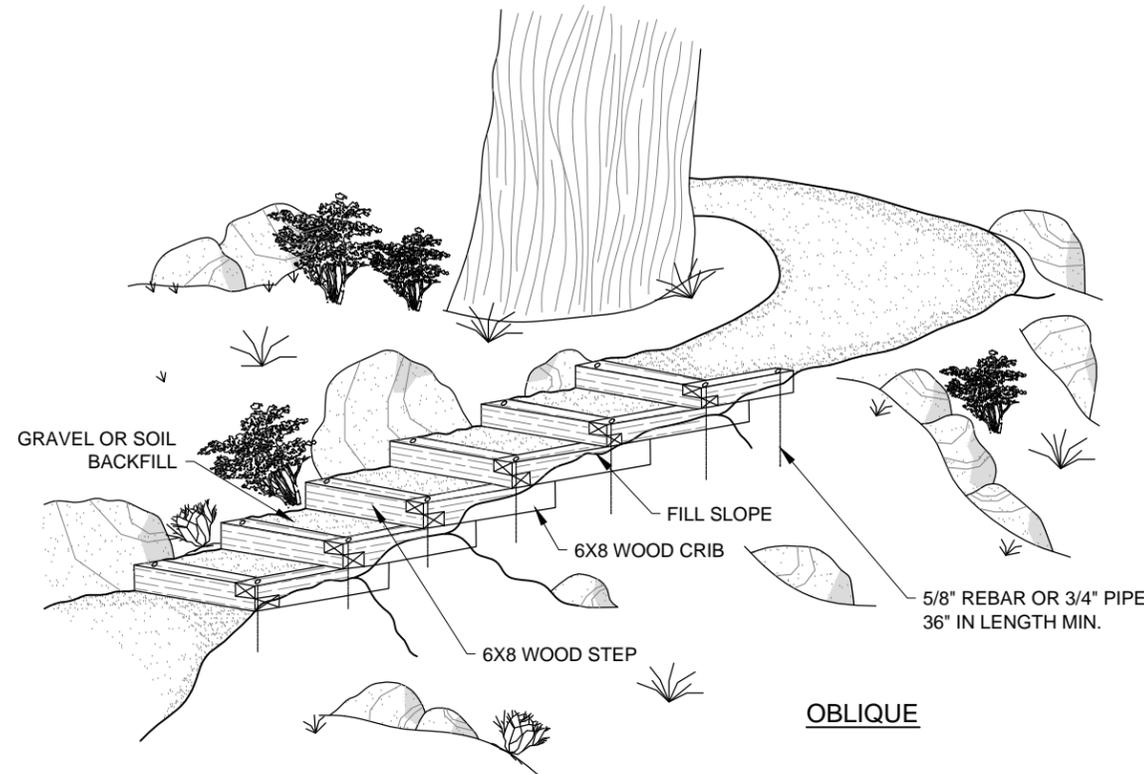
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DATE: 01-20-2014

REVISIONS

DATE



SECTION

INTERLOCKING WOOD STEPS- TYPICAL

NOT TO SCALE



PHOTOS

INTERLOCKING WOOD STEPS- TYPICAL

NOT TO SCALE

- NOTES:
1. REDWOOD OR PT DOUGLAS FIR TIMBER

TWIN LAKES STATE BEACH  
SCHWAN LAKE PARK TRAIL  
ACCESSIBILITY IMPROVEMENTS  
DETAIL SHEET

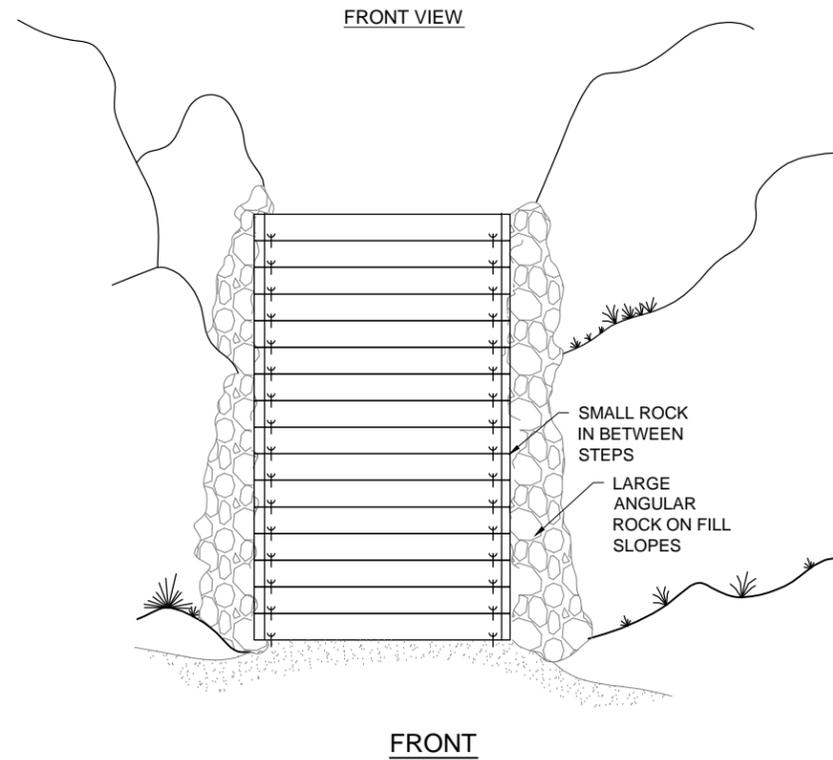
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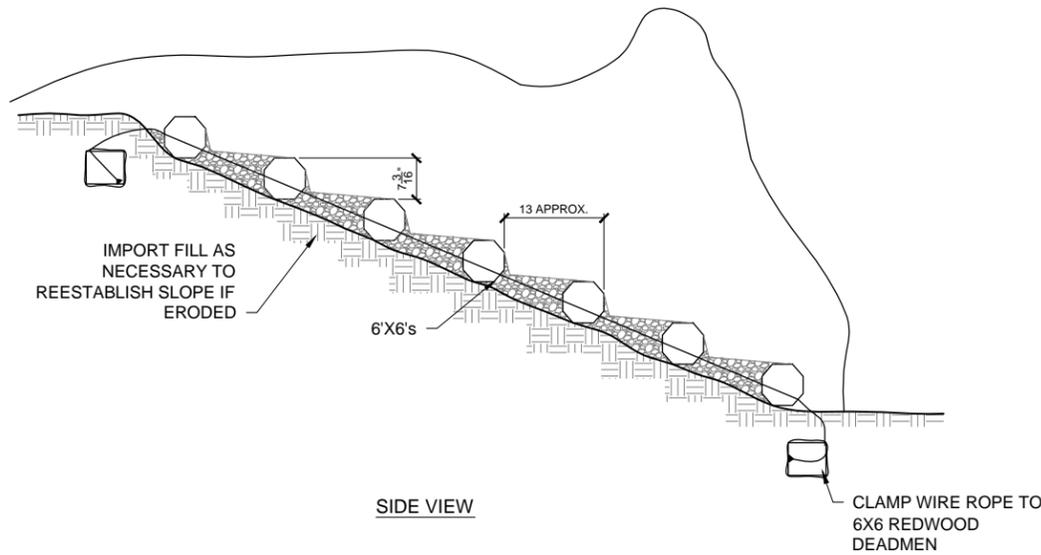
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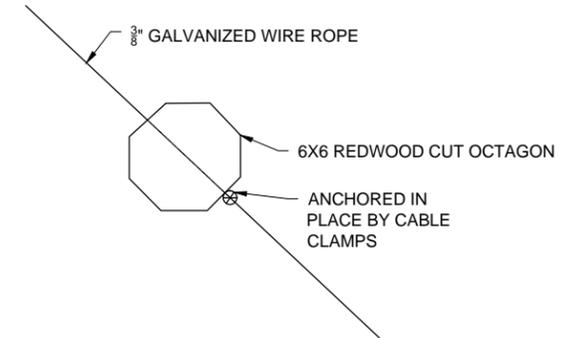
ACCESSIBILITY SECTION  
 One Capitol Mall  
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 95814-3229



FRONT



SIDE VIEW



SECTION

**CABLE STEPS- TYPICAL**

NOT TO SCALE



PHOTOS

NOTES:

- 1. REDWOOD OR PT DOUGLAS FIR TIMBER

**CABLE STEPS- TYPICAL**

NOT TO SCALE

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TWIN LAKES STATE BEACH  
 SCHWAN LAKE PARK TRAIL  
 ACCESSIBILITY IMPROVEMENTS  
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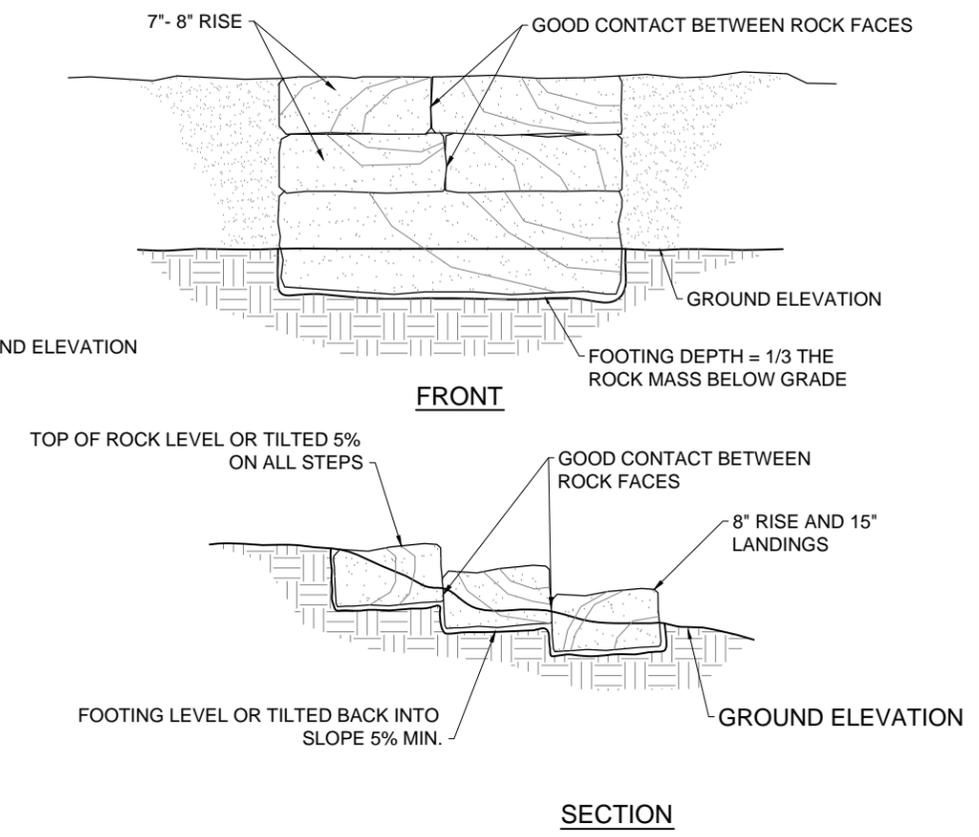
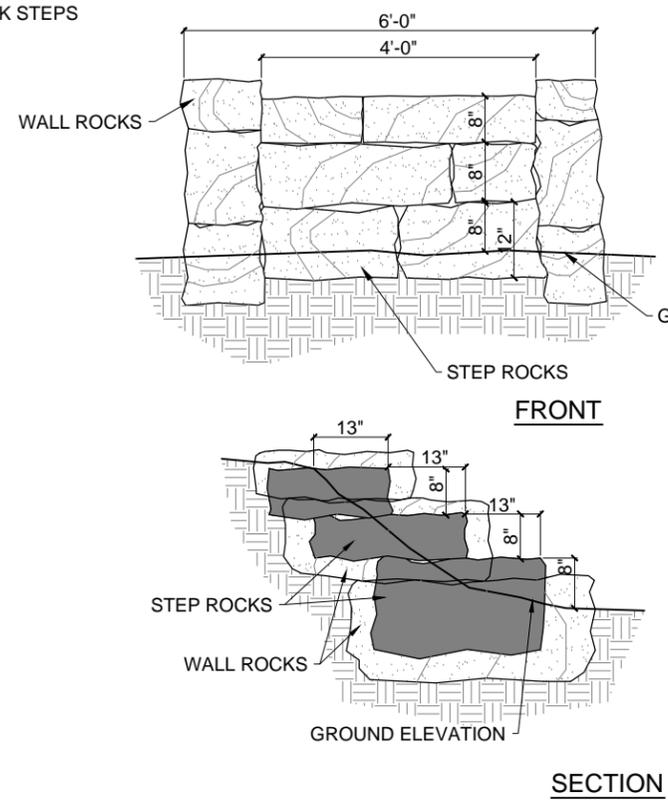
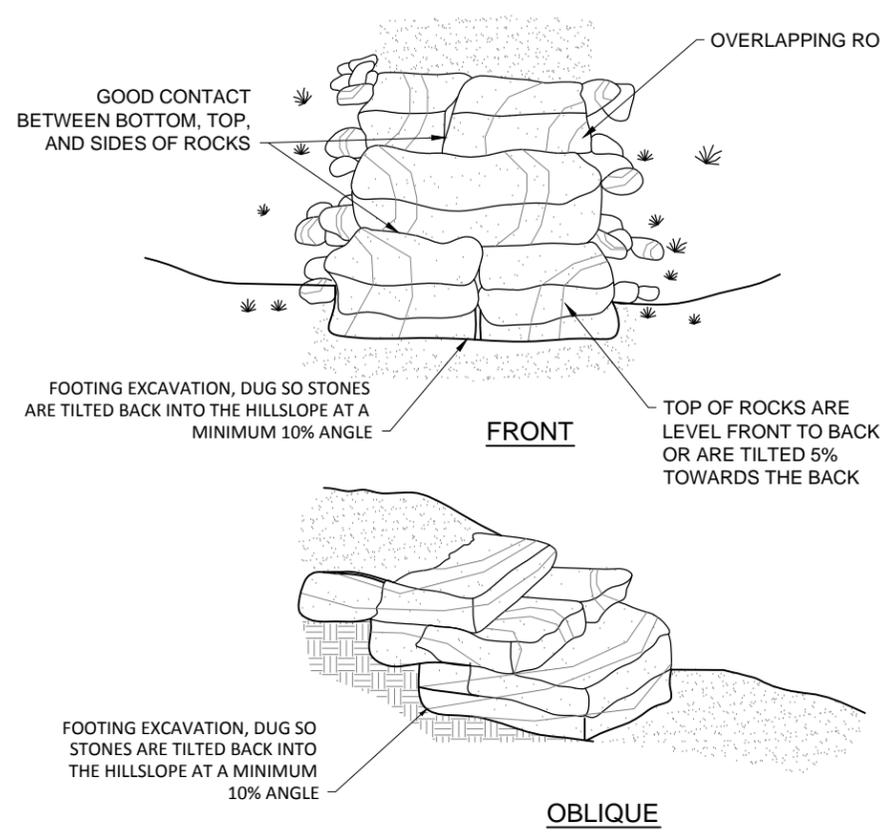
SHEET NO.

D-6

9 OF 10



ACCESSIBILITY SECTION  
 One Capitol Mall  
 Sacramento, CA  
 95814-3229



## ROCK STEPS- TYPICAL

NOT TO SCALE



PHOTOS

## ROCK STEPS- TYPICAL

NOT TO SCALE

- NOTES:  
 1.

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 CERTIFICATION # \_\_\_\_\_

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 SCHWAN LAKE PARK TRAIL  
 ACCESSIBILITY IMPROVEMENTS  
 DETAIL SHEET

DRAWING NO.  
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SHEET NO.  
**D-7**  
 10 OF 10

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## APPENDIX B – ACRONYMS

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### Acronyms

AAQS	Ambient Air Quality Standards
AB	Asphalt Base
ACOE	Army Corps of Engineers
ADA	Americans with Disabilities Act
APCD	Air Pollution Control District
AQCB	Air Quality Control Board
ARB	Air Resources Board
BMP	Best Management Practices
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CSQA	California Stormwater Quality Association
DBH	diameter at breast height
DPR	Department of Parks and Recreation
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ft	feet
GHG	Greenhouse Gases
IS	Initial Study
lf	linear feet
MND	Mitigated Negative Declaration
NAHC	Native American Heritage Council
ND	Negative Declaration
PRC	Public Resources Code
SB	State Beach
SWSLPP	Stormwater Soil Loss Prevention Plan
TLSB	Twin Lakes State Beach
WRCB	Water Resources Control Board

## APPENDIX C – GLOSSARY

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- ¾" Class II AB Fill: Aggregate Base used in roadways; is an aggregate made of a specific recipe of different sizes and quality of rock inclusive of ¾ in (19.05 mm) to fine dust.
- Abutment: Structure at either extreme end of a bridge that supports the superstructure (sill, stringers, trusses, or decks) composed of stone, concrete, brick, or timber.
- Alignment: The configuration of the trail in horizontal and vertical planes. The bends, curves, and ups and downs of the trail. The more the alignment varies, the more challenging the trail.
- Bench Cut: A relatively flat, stable surface (tread) on a hillside made by excavation. When excavated, often referred to as full, half, or partial bench to describe the proportions of excavation and fill comprising the trail bed.
- Bench Cut, Full: The total width of the trail tread is excavated out of the slope, and the trail tread contains no compacted fill material. The most durable and recommended style of bench cut trail.
- Bench Cut, Half: Half the width of the trail tread is excavated out of the slope and the downhill (outside) half of the trail tread contains the excavated and compacted material.
- Bench Cut, Partial: Where part of the width of the trail tread is excavated out of the slope and the rest of the trail tread is made up of fill material.
- Brushing: removal of living and dead vegetation from the trail
- Cross Slope: Cross-sloping, either in-sloped or out-sloped, of the road is the slope angle of the road cross-section, typically measured in percent or expressed as inches of vertical change per foot of horizontal distance.
- Crown: A surface configuration that sheds water to both sides of the road from its longitudinal highpoint
- Consent Decree: A settlement of a lawsuit which a person or company agrees to take specific actions without admitting fault or guilt for the situation that led to the lawsuit.
- Cut Slope: The exposed ground surface resulting from the excavation of material on the natural terrain.
- Dripline: the beginning point of where the tree begins to get moisture from the soil.
- Effects (or Impacts): The biological, physical, social, or economic consequences resulting from a proposed action. Effects may be adverse (detrimental) or beneficial, and cumulative, direct, or indirect.
- Effects, Cumulative: The impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions. Cumulative impacts can also result from individually minor but collectively significant actions taking place over a period of time.

- Effects, Direct: Effects on the environment which occur at the same time and place as the initial cause or action.
- Effects, Indirect: Effects also caused by the action, but occurring at a later time or further removed in distance.
- Entrenched, Rut(s) (Rutting): Sunken tracks or grooves in the tread surface cut in the direction of travel by the passage of trail users or water.
- Erosion: Natural processes (water, wind, ice, or other physical processes) by which soil particles are detached from the ground surface and moved downslope, principally by the actions of running water (gully, rill, or sheet erosion). The combination of water falling on the trail, running down the trail, and freezing and thawing, and the wear and tear from traffic create significant erosion problems on trails.
- Fill: Material (usually mineral soil and rock) excavated from the trail or a borrow site to fill holes in trail tread, stabilize rock steps, or to pack behind retaining walls and other structures.
- Fill Slope: Area of excavated material cast on the downslope side of trail cut (also called embankment).
- Footing: The part of a structural foundation that rests on the ground, spreading the weight of the structure and supporting the structure above. Footings are usually concrete. At remote sites the footings may also be mortared stone masonry
- Grade (Gradient): The vertical distance of ascent or descent of the trail expressed as a percentage of the horizontal distance, commonly measured as a ratio of rise to length or as a percent. For example, a trail that rises 8 vertical feet in 100 horizontal feet has an 8% grade. Grade is different than angle; angle is measured with a straight vertical as 90° and a straight horizontal as 0°. A grade of 100% would have an angle of 45°.
- Infrared radiation: invisible radiant energy
- Interpretation: Communicating information about the natural and/or cultural resources and their associated stories and values found at a specific site or along a trail. Tours, signs, brochures, and other means can be used to interpret a particular resource
- Mud sill: foundation for a bridge
- Out-slope: Out-sloped road surfaces drain water from the entire width of the road toward the fill-bank or down-slope side. The road is shaped to avoid collection or concentration of water in a ditch. Minor overland sheet flow is allowed to flow across the road (2). Out-sloping is useful on roads where concerns about winter icing are minimal or side-slopes are gentle.
- Overlook; have a view from above
- Prism: The trail cross-section as a whole
- Reconstruct (Reconstruction, Renovate): To replace or rebuild trail or trail structure (switchback, waterbar, bridge, etc.) that is no longer safe to use or in poor condition.

Also can include all work to bring an existing trail up to its classification standard, including necessary relocation of minor portions of the trail.

- Revegetation: Process of planting or transplanting vegetation on bare soil to develop plant cover.
- Riparian (Riparian Zone, Habitat Zone): A habitat that is strongly influenced by water and that occurs adjacent to streams, shorelines, wetlands, or other water bodies, dominated by high soil moisture content and influenced by adjacent upland vegetation.
- Riparian Vegetation: Plant species growing adjacent to a wetland area, including a perennial or intermittent stream, lake, river, pond, spring, marsh, bog, meadow, etc.
- Rut(s) (Rutting, Entrenchment): Sunken tracks or grooves in the tread surface cut in the direction of travel by the passage of trail users or water.
- Scenery: The aggregate of features that give character to a landscape.
- Scenic Area: An area whose landscape character exhibits a high degree of variety and harmony among the basic elements which results in a pleasant landscape to view.
- Scenic Quality: The degree of harmony, contrast, and variety within a landscape.
- Scenic View (Vista): A long-distance view that is pleasant and interesting.
- Scenic Viewpoint: A designated area developed at a key location to afford trail users an opportunity to view significant landforms, landscape features, wildlife habitat, and activities.
- Scour (Scouring): Soil erosion through the force of moving water.
- Sea Level: The ocean surface; the mean level between high and low tides. Sea level is used as a reference point in determining land elevation.
- Seasoned Trail: After construction it's a good idea to let the trail settle in (rain or snow will allow tread to harden) or "season" before allowing trail use.
- Sedimentation: Deposition of soil particles or other material carried in water; usually the result of a reduction in water velocity below the point at which the material remains in suspension.
- Sheetflow: The more or less even disbursement of water flowing on low gradient slopes.
- Sideslope: The natural slope of the ground measured at right angles to the centerline of the trail, or the adjacent slope, which is created after excavating a sloping ground surface for a railway, often termed a cut-and-fill-slope, left and right of the trail tread.
- Sill (Sleeper): A crosswise member (stone or timber) that supports the stringers, beams, or trusses of a bridge or boardwalk from contacting the ground. A horizontal log or timber laid in a shallow trench to support a plank or log.
- Slope Stability: The resistance of a natural or artificial slope or other inclined surface to failure by mass movement.
- Slough (pronounced "Sluff"): Material removed from the backslope by erosion or other means that has been deposited on the trail tread. Silt and debris collecting on

the uphill (inside) edge of the trail tread. Slough may raise the height of the tread relative to the original level and result in water pooling on the trail or be sufficient to block the trail.

- **Soil Stabilization:** Measures that protect soil from the erosive forces of raindrop impact and flowing water. They include, but are not limited to, vegetative establishment, mulching, and the application of soil stabilizers to the trail tread.
- **Soil Stabilizer:** Material, either natural or manufactured, used to hold soil in place and prevent erosion due to water, gravity, or trail users. Stabilizers include soil cement, geogrid, etc.
- **Species:** A unit of classification of plants and animals consisting of the largest and most inclusive array or sexually reproducing and cross-fertilizing individuals which share a common gene pool.
- **Species, Invasive or Exotic (Alien, Introduced, Nonindigenous):** Non-native plant or animal species that invades an area and alters the natural mix of species by aggressively out-competing native species.
- **Species, Sensitive:** Any plant or animal species for which population viability is a concern as evidenced by significant current or predicted downward trends in population numbers or density, or habitat capability that would reduce a species' existing distribution.
- **Species, Threatened or Endangered:** Any plant or animal species that is in danger of extinction throughout all or a significant portion of its range, and has been officially listed as endangered by the Secretary of Interior or Commerce under the provisions of the Endangered Species Act. A final rule for the listing has been published in the Federal Register.
- **Staging Area:** An area where users can congregate, park, and begin or end a trip. Designed and managed for day use, whereas a trailhead usually caters to those embarking on an overnight or long-distance trip.
- **Stringer(s):** The lengthwise members of a structure placed parallel with the centerline of the tread, usually resting on sills, which spans wet areas and supports the decking.
- **Sustainable (Sustainability):** Community use of natural resources in a way that does not jeopardize the ability of future generations to live and prosper.
- **Surface Water:** All water on the surface of the Earth naturally exposed to the atmosphere, for example, rivers, lakes, reservoirs, ponds, streams, impoundments, seas, estuaries, etc., and all springs, wells, or other collectors directly influenced by surface water.
- **Sustainable Development:** Development that maintains or enhances economic opportunity and community well-being while protecting and restoring the natural environment upon which people and economies depend. Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs.
- **Sustainable Natural Surface Trail:** A trail that supports currently planned and potential future uses with minimal impact and negligible soil loss while allowing the

naturally occurring plant systems to inhabit the area, recognizing required pruning and eventual removal of certain plants over time. The sustainable trail will require little rerouting and minimal maintenance over extended periods of time.

- Swale: A linear low-lying natural topographic drainage feature running downhill and crossing the trail alignment in which sheet runoff would collect and form a temporary watercourse. A low-lying ground drainage structure (resembling a swale) can be constructed to enhance drainage across the trail.
- Terminus: Either the beginning or end of a trail.
- Toe: The break in slope at the foot of a bank (trail or stream) where the bank meets the bed
- Topography: The elevation and slope of the land as it exists or is proposed. It is represented on drawings by lines connecting points at the same elevation. Typically illustrated by dashed lines for existing topography and solid lines for proposed.
- Trail: A designated route on land or water with public access for recreation or transportation purposes such as walking, jogging, motorcycling, hiking, bicycling, ATVing, horseback riding, mountain biking, canoeing, kayaking, and backpacking.
- Trailhead: An access point to a trail or trail system often accompanied by various public facilities, such as hitching posts for horses, a horse or OHV unloading dock or chute, parking areas, toilets, water, directional and informational signs, and a trail use register. Designed and managed for those embarking on an overnight or long-distance trip, whereas a staging area caters to trail day use.
- Tread: Structural member consisting of the horizontal part of a stair or step. The part (as of a wheel or shoe) that makes contact with the ground. The grooved surface of a pneumatic tire, a step in walking or running.
- Tread, Trail (Treadway): The surface portion of a trail upon which users travel excluding backslope, ditch, and shoulder. Common tread surfaces are native material, gravel, soil cement, asphalt, concrete, or shredded recycled tires.
- Tread Creep: When the loose soil of the trail tread moves (sags or slides) downhill because of erosion or use. Specific causes include bushes or trees protruding into the trail from above, exposure of roots from an uphill tree, an improper bench cut, or poor trail flow.
- Tread Lightly!: Educational program designed to instill outdoor ethics of responsible behavior when participating in outdoor activities ([www.treadlightly.org](http://www.treadlightly.org)).
- Tread Width: The width of the surface portion of the trail used for travel.
- Understory: All forest vegetation growing under the canopy or upper layers of forest vegetation.
- Upland: Land at a higher elevation than the alluvial plain or low stream terrace; all lands outside the riparian-wetland and aquatic zones.
- Urban: Places within boundaries set by state and local officials with moderate to high population densities, and with the majority of land developed as residences, stores, offices, and roads.

- Viewshed: The landscape that can be directly seen under favorable atmospheric conditions from a viewpoint or along a trail corridor.
- Visual Quality: The relative worth of a landscape from a visual perception point of view.
- Visual Resource(s): The visible physical features on a landscape (e.g., land, water, vegetation, animals, structures, and other features).
- Water Course (Watercourse): Any natural or built channel through which water naturally flows or will collect and flow during spring runoff, rainstorms, etc.
- Wetland(s): Lowland areas, such as a marshes or bogs that are saturated with water, creating unique habitat for plants and wildlife.
- Wetland(s), Jurisdictional: Areas subject to the regulations of the Clean Water Act of 1977; generally concave or low-lying topographical forms that collect, store, or flow water frequently enough to favor a majority of plants that are adapted to saturated soil conditions.
- Wildlife: Any undomesticated animal species living in its natural habitat including birds (raptors, songbirds, upland game birds), mammals (furbearers, big game, nongame mammals), reptiles, amphibians, and fish.