

DRAFT

**INITIAL STUDY
NEGATIVE DECLARATION**



**EAST RIDGE AND POOL RIDGE TRAIL
IMPROVEMENT PROJECT**



December 2015



**State of California
Department of Parks and
Recreation**

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NEGATIVE DECLARATION

PROJECT: East Ridge and Pool Ridge Trail Improvement Project
Armstrong Redwoods State Natural Reserve and
Austin Creek State Recreation Area

LEAD AGENCY: California Department of Parks and Recreation

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

- Sonoma Mendocino Coast District Headquarters
25381 Steelhead Blvd
Duncans Mills, California 95430
- Armstrong Redwoods State Natural Reserve
Visitor Center
17000 Armstrong Woods Road
Guerneville, California 95446
- Northern Service Center
One Capital Mall, Suite 410
Sacramento, CA 95814
- Guerneville Library
14107 Armstrong Woods Road
Guerneville, California 95446
- Internet Address: [www.parks.ca.gov/CEQA Notices](http://www.parks.ca.gov/CEQA%20Notices)

PROJECT DESCRIPTION:

The California Department of Parks and Recreation (DPR) proposes to improve deteriorated, unsustainable sections of the East Ridge and Pool Ridge trails within Armstrong Redwoods State Natural Reserve (ARSNR) and Austin Creek State Recreation Area (ACSRA). Work will:

- Upgrade existing trail alignments and features,
- Re-route selected trails sections to eliminate areas of excessively steep grade, and
- Restore areas of problematic erosion.

An expanded description of work can be found in Chapter 2.

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

Brad Michalk
California State Parks
Northern Service Center
One Capital Mall, Ste. 410
Email: CEQANSC@parks.ca.gov Subject Line: Trail Improvements
Fax: 916-445-8883

Submissions must be in writing and postmarked or received by fax or email no later than
January 9, 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 or California State Parks) has independently
reviewed and analyzed the Initial Study and Draft 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 in these documents are
feasible and will be implemented as stated in this environmental document.



Mike Lair
Sonoma Mendocino Coast District
Acting District Superintendent

12/08/2015
Date



Brad Michalk
Environmental Coordinator
Northern Service Center

12/08/2015
Date

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Chapter 1 - Introduction

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 East Ridge and Pool Ridge Trail Improvements Project at Armstrong Redwoods State Natural Reserve (ARSNR) and Austin Creek State Recreation Area (ACSRA), Sonoma 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 Negative Declaration 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/MND 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 DPR. The project manager for the lead agency is:

Brendan O'Neil
Sonoma Mendocino Coast District
25381 Steelhead Blvd
Duncans Mills, CA 95430

Questions or comments regarding this Initial Study/Negative Declaration should be submitted to:

Brad Michalk
Northern Service Center
One Capitol Mall, Suite 410
Sacramento, California 95814
Email: CEQANSC@parks.ca.gov Subject Line: Trail Improvements
Fax: 916-445-8883

Submissions must be in writing and postmarked or received by fax or email no later than December 18, 2015. The originals of any faxed document must be received by regular mail within ten working days following the deadline for comments, along with proof of successful fax transmission. Email or fax submissions must include full name and address. All comments will be included in the final environmental document for this project and become part of the public record.

1.3 PURPOSE AND DOCUMENT ORGANIZATION

The purpose of this document is to evaluate the potential environmental effects of the proposed East Ridge and Pool Ridge Trail Improvements Project at ARSNR and ACSRA. Project Requirements have been incorporated into the project description to eliminate any potentially significant impacts or reduce them to a less-than-significant level.

This document is organized as follows:

- Chapter 1 - Introduction.
This chapter provides an introduction to the project and describes the purpose and organization of this document.
- Chapter 2 - Project Description.
This chapter describes the reasons for the project, scope of the project, project requirements and project objectives.
- Chapter 3 - Environmental Setting, Impacts, and Mitigation Measures.
This chapter identifies the significance of potential environmental impacts, explains the environmental setting for each environmental issue, and evaluates the potential impacts identified in the CEQA Environmental (Initial Study) Checklist. Mitigation measures are incorporated, where appropriate, to reduce potentially significant impacts to a less than significant level.
- Chapter 4 - Mandatory Findings of Significance.
This chapter identifies and summarizes the overall significance of any potential impacts to natural and cultural resources, cumulative impacts, and impact to humans, as identified in the Initial Study.
- Chapter 5 - Summary of Mitigation Measures.
This chapter summarizes the mitigation measures incorporated into the project as a result of the Initial Study.
- Chapter 6 - References.

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

- Chapter 7 - Report Preparation
This chapter provides a list of those involved in the preparation of this document.

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 IS and supporting environmental analysis provided in this document, the proposed Trail 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.

In accordance with §15064(f)(3) of the CEQA Guidelines, a Negative Declaration shall be prepared if the proposed project will not have a significant effect on the environment. Based on the available project information and the environmental analysis presented in this document, there is no substantial evidence that, after the incorporation project requirements into the project description, the proposed project would have a significant effect on the environment.

Chapter 2 - Project Description

2.1 INTRODUCTION

This Initial Study/Negative Declaration (IS/MND) has been prepared by the California Department of Parks and Recreation (DPR or California State Parks) to evaluate the potential environmental effects of the proposed East Ridge and Pool Ridge Trail Improvements Project at ARSNR and ACSRA, located north of the town of Guerneville, Sonoma County, California. The proposed project would improve and maintain East Ridge and Pool Ridge Trails to eliminate steep grades and restore areas of problematic erosion.

2.2 PROJECT LOCATION

ARSNR is located three miles north of Guerneville on Armstrong Woods Road (38°32'17"N 123°0'36"W). ACSRA is also located along Armstrong Woods Road and can only be accessed by passing through the Reserve. The trail improvements project would extend through both parks.

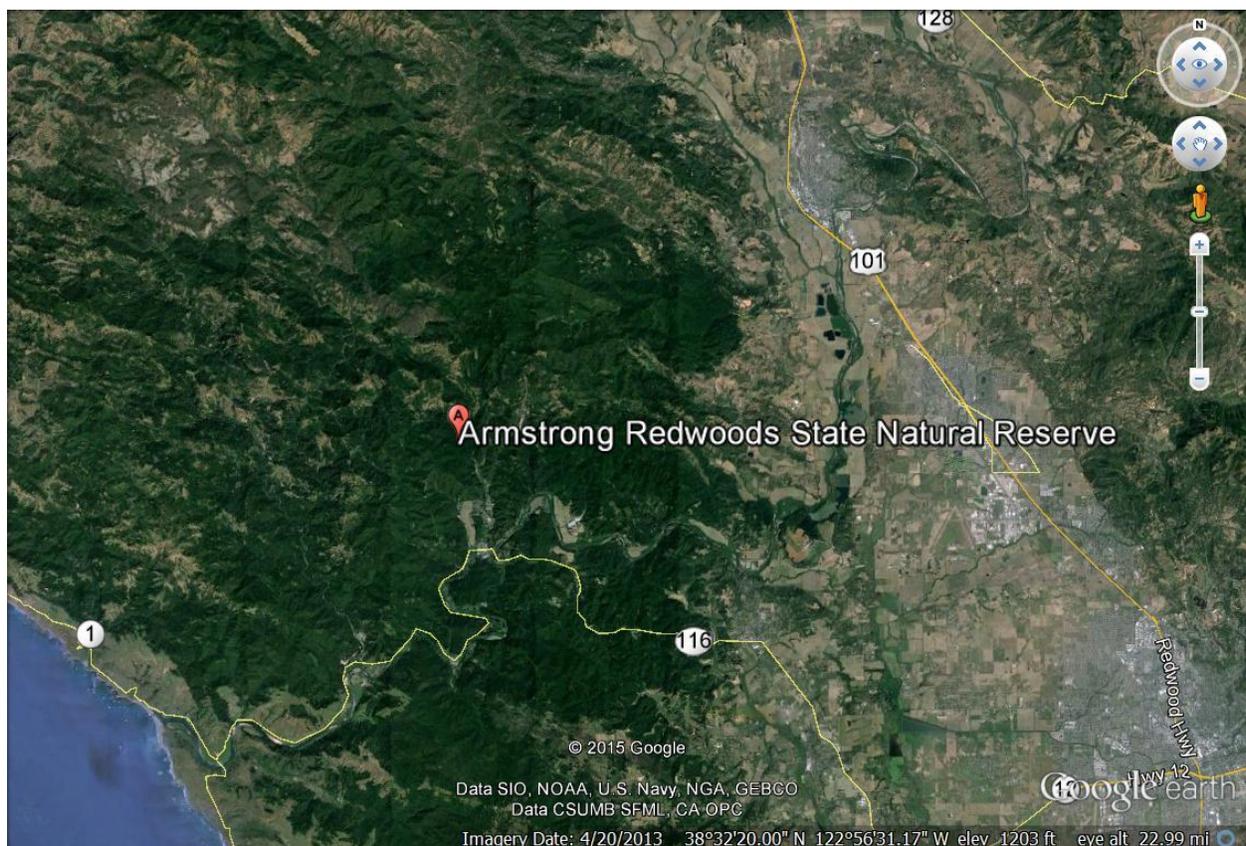


Figure 1 - Project Location

2.3 BACKGROUND AND NEED FOR THE PROJECT

During the 1870s the area was set aside as a natural park and botanical garden by Colonel James Armstrong. After his death, Armstrong's daughter and the Le Baron family mounted an energetic campaign involving public meetings, rallies, and car-caravans to direct public attention to the need to preserve this last remnant of the once mighty redwood forest. Their efforts were successful, and in 1917 the County of Sonoma passed an initiative to purchase the property for \$80,000.

Sonoma County operated the grove until 1934. In 1936, when the state of California took over, the grove was opened to the public as Armstrong Redwoods State Park. The grove's status was changed to a Natural Reserve in 1964 when a greater understanding of its ecological significance prompted a more protective management of the resource.

State Parks began acquisition of land for the future ACSRA in 1964, with an initial purchase of approximately 3,900 acres. ACSRA is adjacent to ARSNR and is accessed through the same entrance; however, ACSRA, its trail and campgrounds are accessed by way of a steep, narrow, winding, 2.5-mile-long, mountain road. Open woodlands, rolling hills, and meadows and rugged topography including elevations ranging from 150-1500 feet characterize this park.

The existing trail system suffers from antiquated and unsustainable design including over-steepened grades and trail sections which are poorly sited within areas of geologic instability (leading to erosion, sedimentation and potential hillslope instability).

Upgraded trail alignments will significantly improve areas of excessively steep grades and restore areas of problematic erosion and potential instability. Within areas of existing acceptable trail alignment, outstanding deferred maintenance is in needed requiring tread reconstruction and vegetation trimming for visitor safety.

Without this project, the trails would continue to degrade, would impact resources and violate the State Park mission statement to protect resources and provide a high-quality recreation opportunity.

2.4 PROJECT OBJECTIVES

The mission of California State Parks is 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.

The goal of this project is to improve the condition and performance of degraded trails. To meet this goal, DPR proposes to repair and restore critically damaged segments of the trail system. Additionally, improvements will protect resources and provide recreational opportunities to visitors. Approval of the proposed project would allow DPR to continue to meet the Department's mission by improving deteriorated trails to continue offering high quality recreation opportunities

2.5 PROJECT DESCRIPTION

This purpose of this project is to improve and maintain East Ridge and Pool Ridge trails within Austin Creek State Recreation Area (ACSRA) and Armstrong Redwoods State Natural Reserve (ARSNR). This will be accomplished by performing reconstruction of trail tread, upgrading existing trail alignments and features, along with trail re-routes to eliminate areas of excessively steep grade and restore areas of problematic erosion.

The scope of the project includes:

- minor grading (tread reconstruction using hand tools) along approximately 24,000 LF of existing trail alignment;
- minor grading (tread reconstruction using light equipment) along 5,420 LF of existing trail alignment;
- the removal (decommissioning) of approximately 3,000 LF of existing trail, and;
- new trail re-routes of approximately 6,020 LF.

Additional improvements within existing trail include:

- installation of rock armored drainage crossings (2);
- puncheon construction (2);
- construction of a bridge (1) to replace an existing failing puncheon;
- a wood retaining wall (24' x 3') associated with the bridge, and;
- the replacement of a (failing) existing bridge (1).

Re-routed sections of trail will be full bench construction. New trail construction will include the removal of small trees and the installation of several small rock retaining walls (approx. 75 cu. ft.). General trail work locations are delineated in Figure 2 and further described in Table 1 below.

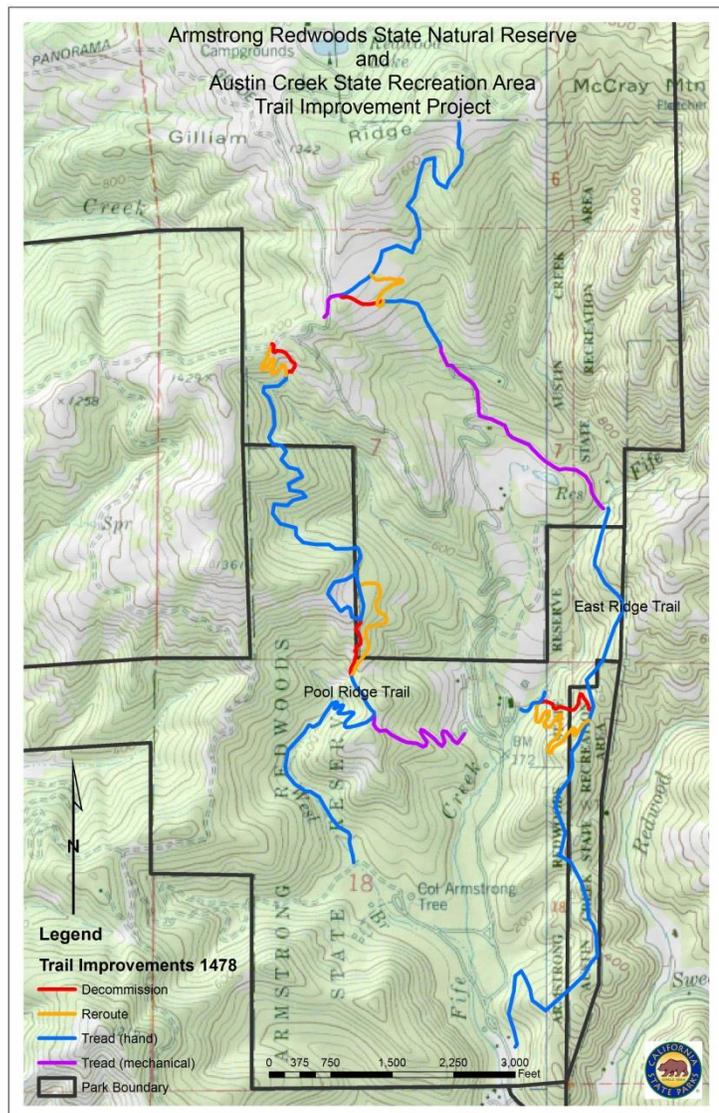


Figure 2 - Trail Improvement Locations

Table 1- Project Work Locations

Trail: Pool Ridge

Date: February 24, 2014

Segment From trail junction at Gilliam Creek

Land Unit: _____

| Begin Feet | End Feet | Action | Feature | Feature Attribute | Tread Width | Narrower | Acrossable | Wood / Pallets | Size/Qty | | | Units | Comment | Total |
|------------|----------|-------------|---|--------------------------|-------------|----------|------------|----------------|----------|-----|-----|--------|---|--------|
| | | | | | | | | | L | H | W | | | |
| 0 | 900 | Reconstruct | Trail Construction | Hillslope >40%<60% | 4 | | | | 9.0 | 1.0 | 1.0 | lin ft | reroute to 500 | 9.0 |
| 150 | 900 | | Trail Clearing Slob Removal | | | | | | 750.0 | 1.0 | 1.0 | | | 750.0 |
| 0 | 900 | | Trail Brushing Construction | Medium | | | | | 900.0 | 1.0 | 1.0 | | | 900.0 |
| 0 | 500 | | Trail Obliteration | Hillslope >40%<60% | | | | | 500.0 | 1.0 | 4.0 | | obliterate old alignment 4 ft trail width | 2000.0 |
| 0 | 900 | construct | Switchback | Hillslope >40%<60% | | | | | 3.0 | 1.0 | 1.0 | | const switchbacks 3 estimated | 3.0 |
| 150 | 900 | | Stump Removal Partial Stump Removal by chainsaw | | | | | | 12.0 | 1.0 | 8.0 | | stump removal by rigging - person hrs | 96.0 |
| 175 | 195 | construct | Retaining Wall Wood Log Crib | Distance >100'<150' | | | | W | 20.0 | 3.0 | 1.0 | | 6 x 8 | 60.0 |
| 215 | 230 | construct | Retaining Wall Rock Multi Tier | | | | | W | 15.0 | 4.0 | 1.5 | | at switchback | 90.0 |
| 270 | 290 | construct | Retaining Wall Rock Multi Tier | | | | | W | 20.0 | 4.0 | 1.5 | | around trees | 120.0 |
| 421 | 436 | construct | Retaining Wall Rock Multi Tier | | | | | w | 15.0 | 4.0 | 1.5 | | at switchback | 90.0 |
| 159 | | Remove | Water Bar wood | | | | | w | | | | | remove from old trail | |
| 190 | | Remove | Water Bar wood | | | | | w | | | | | remove from old trail | |
| 223 | | Remove | Water Bar wood | | | | | w | | | | | remove from old trail | |
| 300 | | Remove | Water Bar wood | | | | | w | | | | | remove from old trail | |
| 311 | 334 | Remove | Steps | Wood Interlocking Double | 4 | | | W | 23.0 | 1.0 | 4.0 | lin ft | 12 steps / hinge entrenchment | 92.0 |
| 339 | 350 | Remove | Steps | Wood Interlocking Double | 4 | | | W | 11.0 | 1.0 | 4.0 | lin ft | 5 steps | 44.0 |
| 350 | | Remove | Retaining Wall Wood Cribbed Interlocking | | | | | W | 17.0 | 0.5 | 0.7 | cu ft | on inboard hinge | 5.6 |
| 500 | 5100 | | Trail Reconstruction | | | | | | 4600.0 | 1.0 | | | reroute joins existing trail | 4600.0 |
| 500 | 5100 | | Trail Brushing Maintenance | | | | | | 4600.0 | 1.0 | | | | 4600.0 |
| 948 | 962 | construct | Armored Stream Crossing | | 4 | | | | 14.0 | 1.0 | 6.0 | cu ft | equestrian | 84.0 |
| 952 | 995 | Remove | Retaining Wall Wood Cribbed Interlocking | | 4 | | | W | 43.0 | 0.5 | 0.5 | cu ft | peeler pole outboard hinge | 10.8 |
| 952 | 1086 | Reconstruct | Trail Reconstruction | | 4 | | | | 134.0 | | | lin ft | | 134.0 |
| 1832 | 1842 | construct | Armored Stream Crossing | | 4 | | | | 10.0 | 1.0 | 6.0 | cu ft | 3 drainages on a corner | 60.0 |
| 1832 | | Remove | Water Bar wood | | 4 | | | w | | | | | peeler pole inboard hinge | |
| 2140 | | Remove | Water Bar wood | | 4 | | | w | | | | | peeler pole outboard hinge | |
| 2454 | | Remove | Water Bar wood | | 4 | | | w | | | | | peeler pole outboard hinge | |
| 2469 | | Remove | Water Bar wood | | 4 | | | w | | | | | peeler pole outboard hinge | |
| 2534 | | Remove | Water Bar wood | | 4 | | | w | | | | | peeler pole outboard hinge | |
| 2926 | 2945 | Reconstruct | Switchback | Hillslope >40%<60% | 4 | | | | 19.0 | | | lin ft | unsure actual hillslope | 19.0 |
| 3011 | 3028 | remove | Retaining Wall Wood Cribbed Interlocking | | 4 | | | w | 17.0 | 0.5 | 0.5 | | on inboard hinge | 4.3 |
| 3075 | 3096 | Reconstruct | Switchback | Hillslope >40%<60% | 4 | | | w | 21.0 | | | lin ft | | 21.0 |
| 3242 | 3250 | Remove | Retaining Wall Wood Cribbed Interlocking | | 4 | | | w | 8.0 | 0.5 | 0.5 | cu ft | on outboard hinge | 2.0 |
| 3297 | 3305 | Remove | Retaining Wall Wood Cribbed Interlocking | | 4 | | | w | 8.0 | 0.5 | 0.5 | cu ft | on outboard hinge | 2.0 |
| 3347 | 3355 | Remove | Retaining Wall Wood Cribbed Interlocking | | 4 | | | w | 8.0 | 0.5 | 0.5 | cu ft | on outboard hinge | 2.0 |
| 3685 | 3703 | Remove | Retaining Wall Wood Cribbed Interlocking | | 4 | | | w | 18.0 | 0.5 | 0.5 | cu ft | on outboard hinge | 4.5 |
| 3712 | 3721 | Remove | Retaining Wall Wood Cribbed Interlocking | | 4 | | | w | 9.0 | 0.5 | 0.5 | cu ft | on outboard hinge | 2.3 |
| 3721 | 3731 | Reconstruct | Punchon | Equestrian | 4 | | | W | 10.0 | 1.0 | 5.0 | cu ft | replace existing w/new | 50.0 |
| 3731 | 3755 | Reconstruct | Retaining Wall Wood Cribbed Interlocking | | 4 | | | w | 24.0 | 3.0 | 1.0 | cu ft | replace old - construct new wood ret wall | 72.0 |
| 3759 | | construct | Bridge | Gluelam | 4 | | | W | 34.0 | | | | glue lam bridge site 34' | 34.0 |
| 3820 | 3844 | Remove | Retaining Wall Wood Cribbed Interlocking | | 4 | | | w | 24.0 | 0.5 | 0.5 | cu ft | | 6.0 |
| 4077 | 4097 | Remove | Retaining Wall Wood Cribbed Interlocking | | 4 | | | w | 20.0 | 0.5 | 0.5 | cu ft | | 5.0 |
| 4097 | 4110 | Reconstruct | punchon | | 4 | | | w | 13.0 | 1.0 | 5.0 | cu ft | | 65.0 |
| 4110 | 4126 | Remove | Retaining Wall Wood Cribbed Interlocking | | 4 | | | w | 16.0 | 0.5 | 0.5 | cu ft | | 4.0 |
| 4632 | | Remove | Down Tree Whole by Rigging | | | | | | | | | | bay tree 6" dia uphill | |
| 5040 | | | Trail Junction | | | | | | | | | | loop trail | |
| 5100 | 6575 | | Trail Junction | | | | | | 1475.0 | | | | begin re-route segment - see separate log | 1475.0 |
| 5659 | | | Trail Junction | | | | | | | | | | loop trail | |
| 5100 | 6575 | Remove | Trail Obliteration | Hillslope >20%<40% | 4 | | | | 946.0 | 1.0 | 4.0 | lin ft | trail obliteration for possible reroute | 3784.0 |
| 6510 | 6553 | Remove | Steps | Cable | 4 | | | W | 19.0 | | | ea | severe entrenchment and erosion | 19.0 |
| 6575 | | | Segment Ends | | | | | | | | | | end of re-route segment | |
| 7202 | | | Trail Junction | | | | | | | | | | to colonel armstrong tree & picnic area | |

Trail: Pool Ridge Reroute

Date: March 21, 2014

Segment from loop trail junction

Land Unit: _____

| Begin Feet | End Feet | Action | Feature | Feature Attribute | Tree Width | Mechanized | Accessible | Wood / Plank | Size/Qty | | | Units | Comment | Total |
|------------|----------|-----------|---|--------------------|------------|------------|------------|--------------|----------|-----|-----|--------|----------------|--------|
| | | | | | | | | | L | H | W | | | |
| 0 | 2053 | Brush | Trail Brushing Construction | Medium | 4 | | | | 2053.0 | | | lin ft | | 2053.0 |
| 0 | 2053 | Remove | Trail Clearing Stob Removal | Medium | 4 | | | | 2053.0 | | | lin ft | | 2053.0 |
| 0 | 645 | Construct | Trail Construction | Hillslope <20% | | | | | 645.0 | | | lin ft | | 645.0 |
| 460 | | remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 12.0 | | | hrs | bay tree | 12.0 |
| 618 | | remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 6.0 | | | hrs | douglas fir | 6.0 |
| 645 | | remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 6.0 | | | hrs | douglas fir | 6.0 |
| 645 | 846 | Construct | Trail Construction | Hillslope >20%<40% | | | | | 201.0 | | | lin ft | | 201.0 |
| 740 | | remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 6.0 | | | hrs | Douglas fir | 6.0 |
| 786 | | remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 6.0 | | | hrs | douglas fir | 6.0 |
| 788 | | remove | Down Tree Whole by Rigging | | | | | | 2.0 | | | hrs | | 2.0 |
| 846 | | remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 12.0 | | | hrs | bay tree | 12.0 |
| 846 | 1151 | Construct | Trail Construction | Hillslope >40%<60% | | | | | 305.0 | | | | | 305.0 |
| 965 | 989 | Construct | Retaining Wall Wood Cribbed Interlocking | | | | | | 24.0 | 1.5 | 0.5 | cu ft | | 18.0 |
| 980 | 985 | Construct | Retaining Wall Rock Multi Tier | | | | | | 5.0 | 3.0 | 1.0 | cu ft | | 15.0 |
| 1036 | | remove | Down Tree Whole by Rigging | | | | | | 2.0 | | | hrs | | 2.0 |
| 1044 | | | Drainage Ditch | | | | | | | | | | center | |
| 1081 | | remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 12.0 | | | hrs | 18" diameter | 12.0 |
| 1103 | | remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 6.0 | | | hrs | | 6.0 |
| 1110 | | remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 6.0 | | | hrs | | 6.0 |
| 1151 | | remove | Down Tree Whole by Rigging | | | | | | 2.0 | | | hrs | 1" diameter | 2.0 |
| 1230 | 2053 | Construct | Trail Construction | Hillslope >60%<90% | | | | | 823.0 | | | lin ft | | 823.0 |
| 1258 | | remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 12.0 | | | hrs | | 12.0 |
| 1307 | | remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 6.0 | | | hrs | | 6.0 |
| 1135 | | remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 6.0 | | | hrs | 1-3' diameter | 6.0 |
| 1518 | | remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 6.0 | | | hrs | | 6.0 |
| 1563 | | remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 12.0 | | | hrs | | 12.0 |
| 1590 | | remove | Down Tree Whole by Rigging | | | | | | 2.0 | | | hrs | | 2.0 |
| 1685 | | Remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 6.0 | | | hrs | | 6.0 |
| 1711 | | Remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 6.0 | | | hrs | | 6.0 |
| 1780 | | Construct | Retaining Wall Rock Multi Tier | | | | | | 15.0 | 4.0 | 1.0 | cu ft | | 60.0 |
| 1802 | | | Drainage Ditch | | | | | | | | | | | |
| 1838 | | remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 12.0 | | | hrs | | 12.0 |
| 1884 | | remove | Stump Removal Partial Stump Removal by chainsaw | | | | | | 12.0 | | | hrs | madrone | 12.0 |
| 2053 | | | Trail Junction | | | | | | | | | | end of segment | |

Pool ridge reroute

1

Trail: East Ridge Trail

Date: February 25, 2014

Segment from repeater to the stewards office

Land Unit: _____

| Begin Feet | End Feet | Action | Feature | Feature Attribute | Tread Width | Mechanized | Accessible | Wood / Plastic | Size/Qty | | | Units | Comment | Total |
|------------|----------|-------------|--|--------------------|-------------|------------|------------|----------------|----------|-----|-----|--------|--|---------|
| | | | | | | | | | L | H | W | | | |
| 0 | | Reconstruct | Trail Head | | 4 | | | | | | | | entrenched need trio maintenance | |
| 0 | 12051 | Reconstruct | Trail Reconstruction | | 4 | | | | 12051.0 | | | lin ft | trio maintenance | 12051.0 |
| 845 | | Reconstruct | switchback | Hillslope >40%<60% | 4 | | | | 1.0 | | | | | 1.0 |
| 1240 | 1386 | remove | Retaining Wall Wood Cribbed Interlocking | | | | | | 146.0 | 0.5 | 0.5 | cu ft | | 36.5 |
| 1300 | | remove | Culvert ABS Plastic Single Wall | Culvert Dia 1' | | | | | 10.0 | 1.0 | 1.0 | cu ft | | 10.0 |
| 1300 | | construct | Armored Swale Crossing | | | | | | 10.0 | 1.0 | 5.0 | cu ft | drainage | 50.0 |
| 1456 | | construct | Armored Swale Crossing | | | | | | 10.0 | 1.0 | 4.0 | cu ft | drainage | 40.0 |
| 1509 | | remove | Down Tree Whole by Rigging | | | | | | 2.0 | | | | 1-3' diameter by rigging | 2.0 |
| 2113 | | construct | Armored Swale Crossing | | | | | | 7.0 | 1.0 | 5.0 | cu ft | drainage | 35.0 |
| 4058 | | | Trail Junction | | | | | | | | | | pool ridge junction by road | |
| 5567 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 5795 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 5845 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 5964 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 6025 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 6154 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 6233 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 6262 | | Reconstruct | climbing turn | Hillslope >20%<30% | | | | | 1.0 | | | | entrenched need trio maintenance | 1.0 |
| 6812 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 6974 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 7038 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 7107 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 8332 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 8381 | | | Bench | | | | | | | | | | wood at pond farm | |
| 8551 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 8614 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 8767 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 8797 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 8827 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 9149 | | | Trail Junction | | | | | | | | | | across bridge after road junction | |
| 9449 | | Reconstruct | climbing turn | Hillslope >20%<30% | | | | | | | | | | |
| 9787 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 10396 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 10535 | | remove | Culvert ABS Plastic Single Wall | Culvert Dia 1' | | | | | 11.0 | 1.0 | 1.0 | cu ft | | 11.0 |
| 10535 | | construct | Armored Swale Crossing | | | | | | 9.0 | 1.0 | 4.0 | cu ft | | 36.0 |
| 10550 | | remove | Culvert ABS Plastic Single Wall | Culvert Dia 1' | | | | | 7.0 | 1.0 | 1.0 | cu ft | | 7.0 |
| 10550 | | construct | Armored Swale Crossing | | | | | | 9.0 | 1.0 | 4.0 | cu ft | | 36.0 |
| 10666 | | remove | Culvert ABS Plastic Single Wall | Culvert Dia 1' | | | | | 6.0 | 1.0 | 1.0 | cu ft | | 6.0 |
| 10666 | | construct | Armored Swale Crossing | | | | | | 5.0 | 1.0 | 4.0 | cu ft | | 20.0 |
| 11105 | | remove | Culvert ABS Plastic Single Wall | Culvert Dia 1' | | | | | 8.0 | 1.0 | 1.0 | cu ft | | 8.0 |
| 11105 | | construct | Water Bar rock | | | | | | 8.0 | 1.0 | 2.0 | cu ft | lineal trail too steep for rip rap to stewards and waterfall | 16.0 |
| 12051 | | | Trail Junction | | | | | | | | | | | |
| 12051 | | Reconstruct | switchback | Hillslope >40%<60% | | | | | 1.0 | | | | | 1.0 |
| 12053 | | remove | Retaining Wall Wood Cribbed Interlocking | | | | | | 16.0 | 0.5 | 0.5 | cu ft | | 4.0 |
| 12060 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 12072 | | remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 12097 | | Reconstruct | switchback | Hillslope >40%<60% | | | | | 1.0 | | | | | 1.0 |
| 12103 | | Remove | Water Bar wood | | | | | | 1.0 | | | | peeler pole | 1.0 |
| 12222 | | Reconstruct | switchback | Hillslope >40%<60% | | | | | 1.0 | | | | | 1.0 |
| 12277 | | Reconstruct | switchback | Hillslope >40%<60% | | | | | 1.0 | | | | | 1.0 |
| 12685 | | Reconstruct | climbing turn | Hillslope >20%<30% | | | | | 1.0 | | | | | 1.0 |
| 13294 | | | Trail Junction | | | | | | | | | | spur to waterfall | |
| 13758 | | remove | Bridge | Gluelam | | | | | 30.0 | 1.0 | 5.0 | cu ft | | 150.0 |
| 13758 | | Construct | Bridge | Gluelam | | | | | 30.0 | 1.0 | 5.0 | cu ft | | 150.0 |

Trail Rehabilitation and Restoration

Those existing trail alignments that will be retained will be out-sloped and improved for drainage to minimize erosion potential. General tread treatments will remove built up berm from the outer edge of trail and together with slough material, placed and compacted to form the out-sloped tread. See **Error! Reference source not found.** below:

Reroutes will follow State Parks trail design guidelines with a minimum trail tread width of no less than 3 feet.

Re-route construction will generally be full bench, out-sloped and using drainage features such as rolling dips and rocked crossings for drainage.

Decommissioned trails will be restored to natural conditions. The restoration process includes light equipment to restore trail cuts to near natural grade, planting with suitable transplantable vegetation obtained from re-routes and mulching of all disturbed areas with brush and leaf/needle mulch materials obtained from nearby areas and re-alignment brushing activities.

2.6 PROJECT REQUIREMENTS

Under CEQA, the DPR has the distinction of being considered a Lead

agency, a Responsible

agency, and a Trustee agency. A Lead agency is a public agency that has the primary responsibility for carrying out or approving a project and for implementing CEQA, and a Responsible agency is a public agency other than the lead agency that has responsibility for carrying out or approving a project and for complying with CEQA. A Trustee agency is a state agency having jurisdiction by law over natural resources affected by a project that are held in trust for the people of the State of California. With this distinction comes the

SLOUGH AND BERM REMOVAL

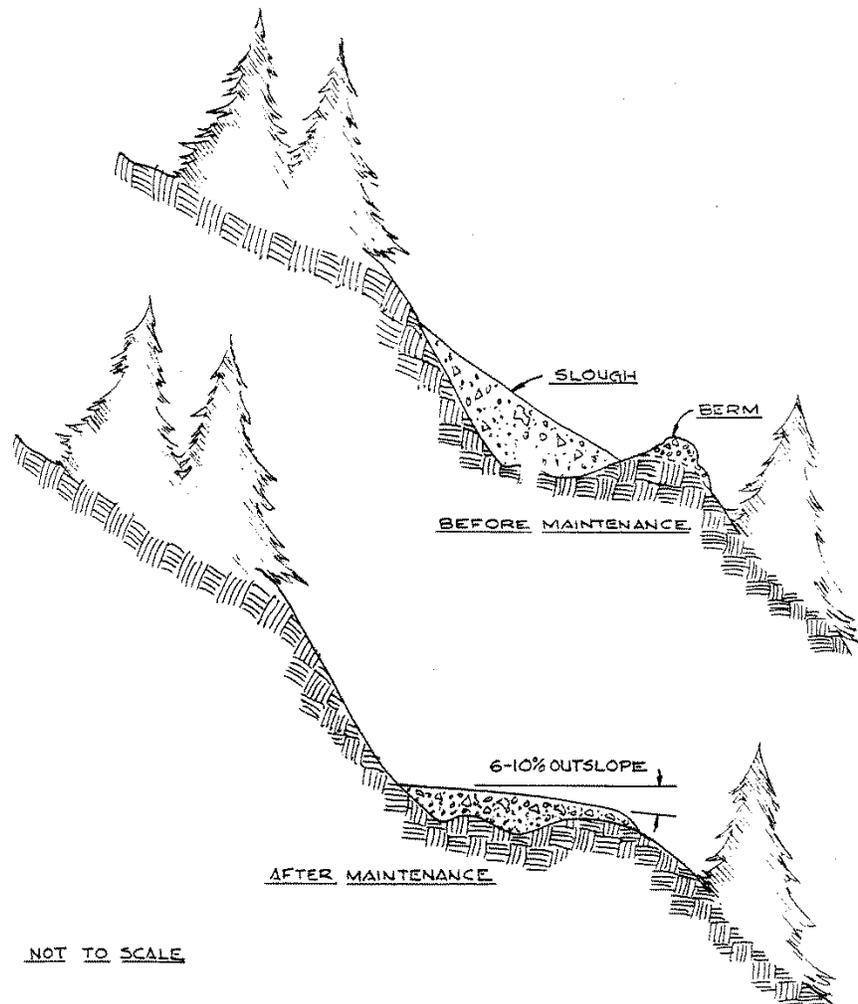


Figure 3 - Slough and Berm Removal Details

responsibility to ensure that actions that protect sensitive resources are always implemented on every project. Therefore, DPR maintains a list of Project Requirements that are included in project design to reduce impacts to sensitive resources.

DPR has developed a list of Standard Project Requirements that are actions that have been standardized statewide for the use 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.

Figure 4- Standard and Specific Project Requirements

| Natural Resources | |
|-------------------------------------|--|
| Standard Project Requirement: Bio 1 | Prior to the start of on-site trail improvement activities, a DPR-qualified biologist will provide a preconstruction training session to construction crew supervisor(s). The training will include a discussion of the sensitive biological resources within the project site and the potential presence of special-status species. This should include a discussion habitats, protection measures, project boundaries, and penalties for non-compliance. |
| Standard Project Requirement: Bio 2 | Trail improvement crew will install temporary wildlife-friendly exclusionary fencing (e.g., silt fence – a piece of synthetic filter fabric (also called a geotextile)) along the limits of the project at each bridge crossing during the removal and construction process. This temporary fencing will preclude animals from entering the work site and prevent construction debris from entering adjacent habitats. |
| Specific Project Requirement: Bio 3 | A DPR-qualified biological monitor will inspect the site at his/her discretion. The biologist will have the authority to stop work as necessary to protect sensitive habitats or special-status species. |
| Specific Project Requirement: Bio 4 | Trail improvement crews will cover all excavated trenches greater than one foot in depth with boards or other appropriate materials or backfilled with dirt at the end of each working day. If trenches remain open overnight, crews will construct earthen escape ramps within the trench. |
| Standard Project Requirement: Bio 5 | All ground disturbing work (e.g. trenching) within the root health zone (5 times the dbh) of trees with a dbh of 18 inches or greater will be limited to manual excavation. Within the root health zone of trees with a dbh of 18 inches or greater no roots larger than 1 inch diameter will be severed, unless authorized in advance by a DPR-approved biologist. |
| Standard Project Requirement: Bio 6 | If a special-status species enters the work area, the construction crew supervisor will contact the DPR-qualified biological monitor for further guidance. The supervisor or field crew will not capture or handle special-status species unless directed by a DPR-qualified biologist. |
| Standard Project Requirement: Bio 7 | Prior to the start of on-site construction activities, the site supervisor and qualified biologist will meet on site to agree upon and flag project boundaries. All work will be confined within those boundaries. |
| Standard Project Requirement: Bio 8 | Work on bridges and stream related features will occur during the dry season (mid-April through mid-October). |
| Standard Project Requirement: Bio 9 | Proper erosion control and other water quality Best Management Practices (BMPs) will be implemented to avoid sedimentation and disturbance into downstream and adjacent aquatic habitats. |
| Standard Project | Prior to the start of work on trail re-route alignments and use |

| | |
|--------------------------------------|---|
| Requirement: Bio 10 | of material storage areas, a DPR-qualified biologist will conduct a pre-construction survey for sensitive species. Should sensitive species be found, work in the surrounding area will be delayed until the species moves on its own accord out of the project site. No handling of sensitive species will occur. |
| Specific Project Requirement: Bio 11 | No conifers larger than 11 inches in diameter (at breast height) will be removed. |
| Specific Project Requirement: Bio 12 | Noise generated from construction activities must remain below ambient levels during NSO and MAMU breeding season of February 1st to September 15th if surveys result in detection of both species. Noise generated from construction activities must remain below ambient levels during NSO breeding season of February 1st to July 10th if surveys result in detection of NSO, but not MAMU. Noise generated from construction activities must remain below ambient levels during MAMU breeding season of March 24th to September 15th if surveys result in detection of MAMU, but not NSO. No noise restrictions would be in place if surveys do not detect either NSO or MAMU. |
| Specific Project Requirement: Bio 13 | Construction activities will be limited to daylight hours to protect with the foraging abilities of special-status and common bat species and Sonoma red tree voles. |
| Standard Project Requirement: Bio 14 | Construction activities involving removal of vegetation or disturbance to existing habitats will occur outside of the critical breeding period to protect breeding birds, If activities must occur during the normal breeding season (mid-March to mid-August) and suitable breeding habitat is present, prior to the start of trail improvement activities, a DPR-qualified biologist will survey work areas. If active nests or behavior indicative of nesting birds are encountered, those areas plus a 75-foot buffer area for small songbirds and 200 feet for larger species (e.g., raptors, owls, etc.) designated by the biologist will be avoided until the nests have been vacated as determined by the assigned biologist. |
| Specific Project Requirement: Bio 15 | All project activities and property or equipment that could spread <i>Phytophthora ramorum</i> 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 . |
| Specific Project Requirement: Bio 16 | All project-related staff will deposit trash in covered trash containers and removed from the project site at the end of each working day. |
| Cultural Resources | |
| Specific Project Requirement: Cult 1 | 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. |
| Specific Project Requirement: Cult 2 | A DPR archaeologist will review all BMPs and SWSLPP developed for the project. |
| Specific Project Requirement: Cult 3 | During construction, a DPR archaeologist must review and approve all change orders/RFIs that include ground disturbing activities or changes in location. |
| Specific Project Requirement: Cult 4 | Unless a DPR archaeologist review and approves disposal areas within the park, spoils generated from the project will be disposed of outside of the park. |
| Specific Project Requirement: Cult 5 | A DPR archaeologist will approve all staging locations for materials and equipment. |
| Standard Project Requirement: Cult 1 Inadvertent Discovery | <p>a) 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.</p> <p>b) 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.</p> |
| Standard Project Requirement Cult-2: 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 DRP 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. |
| Geo/Soils | |

| | |
|---|--|
| <p>Standard Project Requirement: Hydro-1: Erosion and Sediment Control / Pollution Prevention</p> | <p>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 runoff and/or wind erosion, sedimentation and/or of dust/particulate matter 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 hydroseeding to stabilize disturbed soils, dust control, stockpile management and management of washout areas.</p> |
| <p>Hazards</p> | |
| <p>Standard Project Requirement: Hazmat-1: Spill Prevention and Response</p> | <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> ▪ 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. |
| <p>Project Specific Requirement Hazmat-2: Wildfire Avoidance</p> | <ul style="list-style-type: none"> • For any work during red flag conditions, a Fire Safety Plan will be developed and approved by the local CalFire Battalion Chief. • 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. |
| <p>Hydrology</p> | |

| | |
|--|--|
| <p>Standard Project Requirement Hydro-1: Erosion and Sediment Control / Pollution Prevention</p> | <p>Prior to the start of construction involving ground-disturbing activities, the District will prepare and submit a Storm Water Soil Loss Pollution Prevention Plan (SWSLPPP) for CSP approval that identifies temporary Best Management Practices (BMPs) (e.g., tarping of any stockpiled materials or soil; use of silt fences, straw bale barriers, fiber rolls, etc.) and permanent (e.g., structural containment, preserving or planting of vegetation) for use in all construction areas to reduce or eliminate the discharge of soil, surface water runoff, and pollutants during all excavation, grading, trenching, repaving, or other ground-disturbing activities. The SWSLPPP will include BMPs for hazardous waste and contaminated soils management and a Spill Prevention and Control Plan (SPCP), as appropriate.</p> |
| <p>Noise</p> | |
| <p>Standard Project Requirement Noise-1: Noise Exposure</p> | <ul style="list-style-type: none"> • Project-related activities will generally be limited to the daylight hours, Monday through Friday. However, weekend work will 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 6:00 p.m. • Internal combustion engines used for any purpose in the project areas will be equipped with a muffler of a type recommended by the manufacturer. Equipment and trucks used for project-related activities will utilize DPR-approved noise control techniques (e.g., engine enclosures, acoustically attenuating shields or shrouds, intake silencers, ducts, etc.) whenever feasible and necessary. • Stationary noise sources and staging areas will be located as far from visitors as possible. If they must be located near visitors, stationary noise sources will be muffled to the extent feasible, and/or where practicable, enclosed within temporary sheds. |

2.7 PROJECT IMPLEMENTATION

All trail construction and rehabilitation activities would be limited to the trail prism of existing and proposed alignments. Areas necessary for the storage/staging of materials would be limited to existing road, trail, and parking areas.

Construction would occur in phases with basic work considered maintenance to start in Spring 2016, or soon thereafter. Additional work would occur as design and project requirement timing and permits allow. Work could potentially continue for months considering timing limitations. Work would occur only during daylight hours and would be scheduled to incur the least amount of impact to visitors; however, weekend work could be implemented to accommodate CCC spikes, accelerate construction or address emergency or unforeseen circumstances.

Trail construction equipment, such as mechanized wheelbarrows, small trail dozer, and/or mini-excavator, compressor, portable generator, and dump truck could be used during various phases of construction. Most equipment would be transported to the site and remain until associated work is completed. Transport vehicles for material or equipment delivery trucks, and crew vehicles would also be present intermittently at the site. Staging areas for equipment would be confined to the existing parking areas and other previously-disturbed areas.

Best Management Practices (BMPs) would be incorporated into this project design to ensure that the natural 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. During construction, partial closures of the day use areas would be required

2.8 VISITATION TO ARMSTRONG STATE NATURAL RESERVE AND AUSTIN CREEK STATE RECREATION AREA

This project would improve specific segments of two existing trails and would not increase visitation to ARSNR or ACSRA.

Table 2 - Park Visitation

| Armstrong Redwoods SNR Visitation | | | | Austin Creek SRA Visitation | | | | |
|-----------------------------------|--------------|--------------|------------------|-----------------------------|--------------|--------------|---------|----------------|
| Fiscal Year | Paid Day Use | Free Day Use | Total | Fiscal Year | Paid Day Use | Free Day Use | Camping | Total |
| 2000/2001 | 79,753 | 472,957 | 552,710 | 2000/2001 | 26,940 | 116,790 | 12,067 | 155,797 |
| 2001/2002 | 70,460 | 921,162 | 991,622 | 2001/2002 | 24,787 | 129,858 | 7770 | 162,415 |
| 2002/2003 | 66,576 | 966,406 | 1,032,982 | 2002/2003 | 23,244 | 122,312 | 8736 | 154,292 |
| 2003/2004 | 66,643 | 1,069,454 | 1,136,097 | 2003/2004 | 24,772 | 138,462 | 12,814 | 176,048 |
| 2004/2005 | 59,325 | 1,083,962 | 1,143,287 | 2004/2005 | 23,704 | 127,403 | 10,142 | 161,249 |
| 2005/2006 | 47,599 | 917,150 | 964,749 | 2005/2006 | 21,649 | 143,339 | 5492 | 170,480 |
| 2006/2007 | 50,137 | 763,274 | 813,411 | 2006/2007 | 22,060 | 208,252 | 5761 | 236,073 |
| 2007/2008 | 50,787 | 774,173 | 824,960 | 2007/2008 | 25,912 | 290,524 | 7751 | 324,187 |
| 2008/2009 | 47,936 | 674,134 | 722,070 | 2008/2009 | 22,328 | 207,798 | 7955 | 237,481 |
| 2009/2010 | 40,187 | 628,381 | 668,568 | 2009/2010 | 19,906 | 190,750 | 4080 | 214,736 |
| 2010/2011 | 36,962 | 568,793 | 605,755 | 2010/2011 | 18,542 | 167,468 | 3290 | 189,300 |
| 2011/2012 | 45,056 | 702,531 | 747,587 | 2011/2012 | 22,118 | 207,144 | 1902 | 231,164 |

2.9 CONSISTENCY WITH LOCAL PLANS AND POLICIES

The project is consistent with the DPR mission and its management directives aimed at preserving the state's extraordinary biological diversity and protecting valued natural

and cultural resources. The proposed project is consistent with local plans and policies currently in effect.

2.10 DISCRETIONARY APPROVALS

The project could require approval from California Department of Fish and Wildlife for potential project activities above Fife Creek. Additional internal document reviews include compliance with Public Resources Code § 5024 and consistency with Departmental Operating Manuals. DPR will acquire all necessary reviews and permits prior to implementing any project components requiring regulatory review.

2.11 RELATED PROJECTS

DPR often has other smaller maintenance programs, minor restoration, and interpretive projects planned for a park unit.

Armstrong Redwoods SNR

- Special Events (Stewards)
- General Plan

Austin Creek SRA

- Pond Farm Stabilization and Rehab
- Pond Farm Fencing

Any projects proposed in areas that have not been previously discussed would occur under separate CEQA documentation.

Chapter 3 - Environmental Checklist

PROJECT INFORMATION

1. Project Title: East Ridge and Pool Ridge Trail Improvements
2. Lead Agency Name & Address: California Department of Parks and Recreation
3. Contact Person & Phone Number: Brendan O'Neil (707) 865-3129
4. Project Location: Armstrong Redwoods State Natural Reserve
Austin Creek State Recreation Area
5. Project Sponsor Name & Address: California Department of Parks and Recreation
Sonoma Mendocino Coast District
25381 Steelhead Blvd
Duncans Mills, CA
95430
6. General Plan Designation: Recreation
7. Zoning: Open Space
8. Description of Project: The California Department of Parks and Recreation proposes to improve deteriorated, unsustainable sections of the East Ridge and Pool Ridge trails within Armstrong Redwoods State Natural Reserve (ARSNR) and Austin Creek State Recreation Area (ACSRA).
Work will:
 - Upgrade existing trail alignments and features,
 - Re-route selected trails sections to eliminate areas of excessively steep grade, and
 - Restore areas of problematic erosion.
9. Surrounding Land Uses & Setting: Refer to Chapter 3 of this document (Section IX, Land Use Planning)
10. Approval Required from Other Public Agencies: Refer to Chapter 2, Section 2.9

1. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact", as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agricultural Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> 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 type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | <input type="checkbox"/> None |

DETERMINATION

On the basis of this initial evaluation:

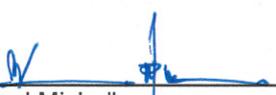
I find that the proposed project **COULD NOT** have a significant effect on the environment and a **NEGATIVE DECLARATION** will be prepared.

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 must 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, because 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, all impacts have been avoided or mitigated to a less-than-significant level and no further action is required.



 Brad Michalk
 Environmental Coordinator

12/08/2015

 Date

ENVIRONMENTAL ISSUES

I. AESTHETICS.

ENVIRONMENTAL SETTING

Armstrong Redwoods State Natural Reserve (ARSNR) is comprised of approximately 805 acres in the coastal mountains of Sonoma County. The park unit is known for containing the largest contiguous stand of old growth coast redwoods in Sonoma County (DPR 2012). Visitors access the Visitor Center and the numerous day use facilities via Armstrong Woods Road (DPR 2012).

Austin Creek State Recreation Area (ACSRA) is a 5,700 acre wilderness area with elevations ranging from 150-1500 feet of oak woodlands, redwood forest, steep ravines, lush hillsides, flowing meadows and the headwaters of East Austin, Fife, and Gilliam creeks and 20 miles of hiking and equestrian trails with a rich diversity of animal and plant life including springtime wildflowers. (Stewards)



There are no officially State-designated scenic highways in or adjacent to the either park.

| | <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|--|---|--|---|-------------------------------------|
| 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) Although both of these parks contain numerous views that could be considered scenic, nothing has been officially designated. The proposed project would improve existing trails to maintain the trails and reduce erosion. No impact.
- b) The proposed project site is located entirely within Armstrong Redwoods State Natural Reserve and Austin Creek State Recreation Area. The closest road, Armstrong Woods Road at the Reserve entrance, is not eligible for listing as a California State Scenic Highway (CalTrans 2012). No impact.
- c) Construction activities would require excavation of soil and removal of a relatively limited amount of vegetation within the project site. As with any construction project, a temporary decrease in the visual appeal of the areas immediately affected by the work being performed would occur; however, construction-related activities would be temporary. The trails would be improved and areas revegetated, returning the site to pre-construction or better conditions at the end of the project. Less than significant.
- d) Lighting is not an element of this project, all work will be conducted during daylight hours, and no permanent new light sources will be introduced into the landscape. No impact.

II. AGRICULTURAL and FOREST RESOURCES.

ENVIRONMENTAL SETTING

ARSNR and ACSRA are both located within Sonoma County. Approximately 1500 square miles in size, Sonoma County's diverse landscape, ranging from mixed conifer forests to rolling hills to coastal prairies have long supported a mix of farming, agricultural and forestry interests; producing fruit, nut, vegetable, livestock and timber crops. The diverse agricultural industries in Sonoma County play a large part in the county's economy.

Important farmland soils are located throughout Sonoma County but are concentrated primarily in the Sonoma Valley, west Sebastopol, west Santa Rosa, Alexander Valley, and Dry Creek Valley regions. Soil, climate, topography and water combine to make these lands highly productive agricultural areas.

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments which are lower than normal because they are based upon farming and open space uses as opposed to full market value of the property (CDC 2011). As of 2013, Sonoma County has about 272,000 acres of land under Williamson Act contracts, comprising approximately 24 percent of the County's land area.

Important timberland soils are located primarily in the County's northwest and Russian River area. Approximately 513,000 acres (about 50% of the County land area) in Sonoma County are devoted to forest and woodlands. These include 72,000 acres (7%) of conifer forest, 284,000 acres (28%) of hardwoods, and 157,000 (15%) acres of conifer mixed with hardwoods. These areas are often interspersed with grasslands, shrublands or agricultural lands and residences. In 2000, a total of 24,157,000 board feet of lumber valued at roughly 19.5 million dollars was harvested in Sonoma County. This amount was roughly 1.2% of the timber harvested in the State during that year

In Sonoma County, "timberlands" are generally considered to be those lands that are capable of and available for growing a commercial species of timber such as Redwoods and Douglas fir; these lands are predominantly in the northwest part of the County. There are approximately 232,000 acres of timberland in Sonoma County. Neither ARSNR nor ACSRA support, or are zoned for, timber production.

State natural reserves [PRC § 5019.65 (a)] consist of areas selected and managed for the purpose of preserving their native ecological associations, unique faunal or floral characteristics, geological features, and scenic qualities in a condition of undisturbed integrity. Living and nonliving resources shall not be disturbed or removed for other than scientific or management purposes (DPR 2004).

State recreation areas [PRC § 5019.56 (a)] consist of areas selected, developed, and operated to provide outdoor recreational opportunities. Improvements and uses shall be for the purpose of providing recreational opportunities compatible with scenic and environmental characteristics. Improvements to provide for urban or indoor, formalized recreational activities shall not be undertaken within State Recreation Areas.

| WOULD THE PROJECT*: | <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|--|---|--|---|-------------------------------------|
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with existing zoning for agricultural use or a Williamson Act contract? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code §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.

CRITERIA FOR DETERMINING SIGNIFICANCE

The analysis of determining the significance of impacts of the Proposed Action to Agricultural and Forest Resources is based on criteria **II a – e**, described in the environmental checklist above.

DISCUSSION

a - e) - All work proposed as part of this project would be confined within park boundaries. Therefore, this project will have no impact on any category of California Farmland, conflict with any existing zoning for agricultural use or Williamson Act contract, or result in the conversion of farmland to non-agricultural use or forest land to non-forest land. No impact

III. AIR QUALITY.

ENVIRONMENTAL SETTING

ARSNR and ACSRA are located in the North Coast Air Basin (NCAB) that comprises Del Norte, Humboldt, Trinity, Mendocino and northern Sonoma Counties, under jurisdiction of the Northern Sonoma County Air Pollution Control District (NSCAPCD) and United States Environmental Protection Agency (USEPA) Region IX. Sonoma County is located within the southern portion of the NCAB.

Climate

Climate has a strong influence on both natural resources and recreational opportunities on the project site. Sonoma County has a Mediterranean climate with moderate temperatures, wet winters and typically dry summers. The area around the parks has cool, wet winters and warm, dry summers, a climate typical of northern coastal California. Although rainfall is rare during the summer months, fog often comes up the river from the Pacific Ocean, producing enough condensation to create "fog drip", which sustains the numerous redwood trees, ferns, and other vegetation.

The National Weather Service reports that Guerneville (the closest reporting station) has an average annual rainfall of 49.15 inches (1,248 mm). Measurable precipitation occurs on an average of 73 days each year. The wettest year was 1970 with 70.20 inches (1,783 mm) and the driest year was 1949 with 31.34 inches (796 mm). The most rainfall in one month was 29.08 in January 1970. The most rainfall in 24 hours was 8.40 inches (213 mm) on February 8, 1960.

Prevailing summer winds are from the northwest, averaging 10 to 15 miles per hour, with gusts as high as 50 to 60 miles per hour. Winter storms often batter the coastline with strong, moisture-laden, southerly winds. These winter storms, from November through April, account for nearly all the average annual rainfall that varies between 30 and 38 inches. Winter temperatures are moderate, with averages ranging from highs in the 50's to lows in the 40's. (DPR, 2008)

Air Quality Designations

The California Air Board makes state area designations for ten criteria pollutants (an air pollutant for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set): ozone, suspended particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates, lead, hydrogen sulfide, and visibility reducing particles (VRPs). At the State level, ozone is designated as non-attainment/transitional; PM₁₀ is designated in attainment; PM_{2.5}, carbon monoxide, hydrogen sulfide, and visibility reducing particles are designated unclassified; and nitrogen dioxide, sulfur dioxide, sulfates, and lead are designated in attainment.

If a pollutant concentration is lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "non-attainment" for that pollutant. If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated "unclassified". Non-attainment/transitional is a

subcategory of the non-attainment designation; an area is designated non-attainment/transitional to signify that the area is close to attaining the standard for that pollutant.

In contrast to the State area designations, the USEPA makes National area designations for five criteria pollutants: ozone (8 hour standard; the National 1-hour standard was revoked in June 2005), particulate matter (PM), carbon monoxide, nitrogen dioxide, and sulfur dioxide. At the National level: ozone, carbon monoxide, PM_{2.5}, and nitrogen dioxide are designated unclassified/attainment; PM₁₀ and sulfur dioxide are designated unclassified.

If an area does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant, it is designated as non-attainment. If an area meets the national primary or secondary ambient air quality standard for the pollutant, it is designated in attainment. An 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 is designated unclassifiable (USEPA, 2008).

The following table illustrates the criteria pollutant designations at both the State and federal levels.

Table 3 - State / Federal Designated Pollutants

| Criteria Pollutant | State | Federal |
|-------------------------------|----------------|-------------------------|
| Ozone | Non-Attainment | 8-hour: Non-Attainment |
| Suspended Particulates (PM10) | Non-Attainment | Unclassified |
| Fine Particulates (PM2.5) | Non-Attainment | Unclassified/Attainment |
| Carbon Monoxide | Unclassified | Unclassified/Attainment |
| Nitrogen Dioxide | Attainment | Unclassified/Attainment |
| Sulfur Dioxide | Attainment | Unclassified |
| Lead (particulate) | Attainment | Unclassified/Attainment |
| Sulfates | Attainment | No Federal Standard |
| Hydrogen Sulfide | Unclassified | No Federal Standard |
| Visibility reducing particles | Unclassified | No Federal Standard |

State and National designations are current as of June 2013

Source: Air Quality Planning Branch, Source: California Air Resources Board

Air Monitoring Stations

Four monitoring stations are located in Sonoma County: Cloverdale, Guerneville- 1st & Church, Healdsburg- Matheson and Healdsburg- Municipal Airport. The Cloverdale, Guerneville- 1st & Church, Healdsburg- Matheson stations monitor PM₁₀. The Healdsburg- Municipal Airport station monitors O₃. (CARB).

Sensitive Receptors

Sensitive receptors include individuals as well as groups relating to specific land uses. Some individuals are considered to be more “sensitive” than others to air pollutants. The reasons for greater sensitivity than average include health problems, proximity to the emission source, or duration of exposure to air pollutants. Land uses such as primary and secondary schools, hospitals, and convalescent homes are considered to be sensitive receptors to poor air quality because the very young, the old and the infirm are more susceptible to respiratory infections and other air quality related health problems than the general public. Residential uses are considered sensitive receptors because people in residential areas are often at home for extended periods of time, so they can be exposed to pollutants for extended periods. Recreational areas are considered moderately sensitive to poor air quality because vigorous exercise associated with recreation places a high demand on the human respiratory function.

| | <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|--|---|--|---|-------------------------------------|
| 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 type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Expose sensitive receptors to substantial pollutant concentrations (e.g., children, the elderly, individuals with compromised respiratory or immune systems)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) Create objectionable odors affecting a substantial number of people? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

* 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.

CRITERIA FOR DETERMINING SIGNIFICANCE

The analysis of determining the significance of impacts of the Proposed Action to Air Quality is based on criteria **III a – e**, described in the environmental checklist above.

DISCUSSION

a) The NSCAPCD has not been required by U.S. Environmental Protection Agency (USEPA) to develop a regional air quality plan. There is no State Implementation Plan or Clean Air Plan for the District. Therefore, the Project would not conflict with the implementation of any applicable air quality management plans. No impact.

- b) The air emissions potentially associated with the Project would be temporary emission of fugitive dust and exhaust from equipment and vehicles used during Project construction. No long-term sources of emissions from the project would result. No impact.
- c) Due to the expected small number of internal combustion engines and the expected construction duration, the proposed project is not expected to exceed air quality standards, designations or contribute cumulatively to any criteria pollutant thresholds set by the NSCAPCD. No impact
- d) Sensitive receptors in the vicinity of the proposed project area are limited to recreational users. During construction, the specific trail segments would not be open to public use. In addition, recreational users could opt to use any of the other trails included in these parks. No impact.
- e) The proposed project would not result in the creation of objectionable odors during implementation. Similar to c) above, park visitors could opt to move away from any inadvertent odors caused by the use of trail equipment. No impact.

IV. BIOLOGICAL RESOURCES.

ENVIRONMENTAL SETTING

BACKGROUND

An evaluation of potential impacts of the proposed project on biological resources was conducted by California State Parks, Russian River District Senior Environmental Scientist and the results are presented below. The evaluation included a literature search and field surveys of the existing trails, proposed trail realignment, proposed trail abandonment sections and staging areas. The evaluation included suggestions for design and route locations in order to avoid and minimize impacts to potentially sensitive natural resources. Surveys occurred from April through June of 2014 in addition to thirteen prior years of experience working in both park units.

Environmental Setting

ARSNR is an 805-acre park unit that protects one of the few remaining old growth redwood forests in Sonoma County. Fife Creek flows north to south through ARSNR. ACSRA is an adjoining 5,683-acre park unit that is composed of redwood, Douglas-fir, mixed evergreen, grassland, chaparral, and riparian habitats as well as unique serpentine; grasslands, Sargent cypress forest and chaparral habitats. The southeastern portion of ACSRA is drained by the headwaters of Fife Creek while, the remainder of ACSRA is within the East Austin Creek watershed. The proposed project is predominantly within ACSRA with small portions in ARSNR, the entire project is within the Fife Creek drainage. The entrance to the parks is located 2 miles north of the town of Guerneville.

Vegetation within the project area consists of redwood, mixed evergreen/Douglas-fir, mixed evergreen, oak woodlands and grasslands. These vegetation types have been more specifically classified by Sawyer et al (2009) as; *Sequoia sempervirens* Forest Alliance, *Pseudotsuga menziesii-Notholithocarpus densiflorus* Forest Alliance, *Quercus garryana* Woodland Alliance, *Cynosurus echinatus* Grassland Alliance and *Danthonia californica* Grassland Alliance. In addition, Fife Creek, its tributaries and several seeps are located within the project area.

Sequoia sempervirens Alliance is found in generally mesic soils including; flat alluvial valley bottoms, stream corridors and lower slopes (particularly shaded and north facing) of ARSNR and ACSRA. Redwood (*Sequoia sempervirens*) dominates the canopy which also includes tanbark oak (*Notholithocarpus densiflorus*), Douglas fir (*Pseudotsuga menziesii*), big leaf maple (*Acer macrophyllum*), and California bay laurel (*Umbellularia californica*). Common shrub and herbaceous species include western sword fern (*Polystichum munitum*), California hazelnut (*Corylus cornuta* var. *californica*), redwood sorrel (*Oxalis oregona*), trail plant (*Adenocaulon bicolor*), wild ginger (*Asarum caudatum*), and poison oak (*Toxicodendron diversilobum*).

Douglas-fir and tanbark oak dominate the canopy of the *Pseudotsuga menziesii-Notholithocarpus densiflorus* Forest Alliance and is found on steep slopes and ridges in ARSNR and ACSRA. Scattered Oregon white oak (*Quercus garryana* var. *garryana*) occur where this vegetation type borders the *Quercus garryana* Woodland Alliance type, also includes black oak (*Quercus kelloggii*), madrone (*Arbutus menziesii*), and coast live oak

(*Quercus agrifolia*). Shrubs include California hazelnut, black huckleberry (*Vaccinium ovatum*), hairy honeysuckle (*Lonicera hispidula*), and wild rose (*Rosa gymnocarpa*). Sparse ground cover includes bracken fern (*Pteridium aquilinum*), Oregon-grape (*Berberis aquifolium*), poison oak, western sword fern, hedge nettle (*Stachys ajugoides*) and vanilla leaf (*Achlys triphylla*).

Quercus garryana Woodland Alliance is dominated by Oregon white oak and includes California bay, black oak, coast live oak, Douglas fir and madrone trees. It is found on dry slopes and ridges and often occupies old landslides. Understory includes shrubs of snowberry (*Symphoricarpos albus*), gooseberry (*Ribes* sp.), poison oak and forbs including California fescue (*Festuca californica*), Douglas iris (*Iris douglasii*), and Pacific hound's tongue (*Cynoglossum grande*)

Cynosurus echinatus Grassland Alliance occupies mesic to xeric locations on all landforms and is dominated by Dogtail grass (*Cynosurus echinatus*), rattlesnake grass (*Briza maxima*), purple needle grass (*Stipa pulchra*), ripgut (*Bromus diandrus*), ryegrass (*Lolium* sp.), wild oats (*Avena fatua*) and forbs including California poppy (*Eschscholzia californica*), filaree (*Erodium* sp.), owl's clover (*Triphysaria versicolor*), bicolor lupine (*Lupinus bicolor*), clover (*Trifolium* sp.), tarweed (*Hemizonia congesta*).

California oatgrass (*Danthonia californica*) is the dominant grass within *Danthonia californica* Grassland Alliance. This alliance is found in hygric to mesic areas on all landforms and includes occasional trees of Douglas fir, Oregon oak, tanbark oak, coast live oak, occasional shrubs of coyote brush (*Baccharis pilularis*), grass cover of purple needle grass, common wild oat, rattlesnake grass and forbs including Douglas iris and bracken fern.

Small, seasonally wet areas in the form of freshwater seeps and swales occur along the existing trails, proposed trail realignment, and proposed trail abandonment sections. These seeps are generally located within an understory of one of the above forest or woodland types and contain small populations of common rush (*Juncus effuses*), gray rush (*Juncus patens*), sedge (*Carex aquatilis* and *C. nudata*), California maidenhair (*Adiantum jordanii*), chain fern (*Woodwardia fimbriata*) and streamside monkey flower (*Mimulus guttatus*). These watercourses fall under CDFW classification as class II and III watercourses. The mainstem of Fife Creek passes through the project site and within *Sequoia sempervirens* Alliance. This watercourse is considered a class I watercourse as it is a perennial stream and supports aquatic life including federally listed steelhead.

Wildlife in ARSNR and ACSRA includes common porcupine (*Erethizon dorsatum*), Pacific wren (*Troglodytes pacificus*), Stellar's jay (*Cyanocitta stelleri*) Pacific banana slug (*Ariolimax columbianus*), ensatina (*Ensatina eschscholtzii*), California slender salamander (*Batrachoseps attenuates*) and foothill yellow-legged frog (*Rana boylei*) (iNaturalist.org 2013). Wild pig (*Sus scrofa*), black-tailed deer (*Odocoileus hemionus columbianus*), gray fox (*Urocyon cinereoargeneus*), bobcat (*Felis rufus*), mountain lion (*Puma concolor*), black bear (*Ursus americanus*), raccoon (*Procyon lotor*), saw-whet owl (*Aegolius acadicus*), northern pygmy owl (*Glaucidium californicum*), barred owl (*Strix varia*), pileated woodpecker (*Dryocopus pileatus*), acorn woodpecker (*Melanerpes formicivorus*), dark-eyed junco (*Junco hyemalis*), turkey vulture (*Cathartes aura*), cooper's hawk (*Accipiter cooperii*), robin (*Turdus migratorius*), varied thrush (*Ixoreus naevius*), pacific slope flycatcher (*Empidonax difficilis*), red-breasted nuthatch (*Sitta canadensis*), northern alligator lizard (*Elgaria coerulea*), western fence lizard (*Sceloporus occidentalis*), giant pacific salamander (*Diacamptodon ensatus*), red-bellied newt (*Taricha*

rivularis), western toad (*Bufo boreas*), pacific chorus frog (*Pseudacris regilla*), California red-legged frog (*Rana draytonii*) northern Pacific rattlesnake (*Crotalus oreganus*), California king snake (*Lampropeltis getula californiae*), gopher snake (*Pituophis melanoleucus*) and ringneck snake (*Diadophis punctatus*) are some of the wildlife species observed in and around the project area.

SPECIAL-STATUS SPECIES

Special-status species and their habitats were evaluated for potential impacts associated with the proposed Austin Creek State Recreation Area Trail Rehabilitation Project. Existing available data were 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 Wildlife’s California Natural Diversity Database (CDFW 2012), the California Native Plant Society’s On-line Inventory, Eighth Edition (CNPS 2010), and the U.S. Fish and Wildlife Service (USFWS 2012) were conducted for special-status species and habitats within the Cazadero and eight surrounding 7½ -minute United States Geological Society (USGS) quadrangle maps (Fort Ross, Tombs Creek, Arched Rock, Duncans Mills, Camp Meeker, Guerneville, Geyserville, and Warm Springs Dam).

Special-status plant and animal species are described below along with their potential to occur within the project area and the impacts this project could cause to these species.

SPECIAL STATUS PLANT SPECIES

Special-status plant species that are known or that could potentially occur within or near the project area are based on Rare Find 5 and BIOS 5 (2014) and field observations by the California Department of Parks and Recreation natural resource staff. ARSNR and ACSRA support or have the potential to support several rare plants in a diversity of habitats. These are listed in the following table:

Table 4 - Special Status Plants

| Latin binomial | Common name | ESA | CESA | CRPR |
|--|----------------------------|------|------|------|
| <i>Amorpha californica</i> var. <i>napaensis</i> | Napa false indigo | none | none | 1B.2 |
| <i>Arctostaphylos bakeri</i> ssp. <i>sublaevis</i> | Baker’s manzanita | none | rare | 1B.2 |
| <i>Calochortus raichei</i> | Cedars fairy lantern | none | none | 1B.2 |
| <i>Ceanothus purpureus</i> | holly-leaved ceanothus | none | none | 1B.2 |
| <i>Chlorogalum pomeridianum</i> var. <i>minus</i> | dwarf soaproot | none | none | 1B.2 |
| <i>Cordylanthus tenuis</i> ssp. <i>capillaris</i> | Pennell’s bird’s-beak | none | none | 1B.2 |
| <i>Erigeron serpentinus</i> | serpentine daisy | none | none | 1B.3 |
| <i>Fritillaria liliacea</i> | fragrant fritillary | none | none | 1B.2 |
| <i>Piperia candida</i> | white-flowered rein orchid | none | none | 1B.2 |

| | | | | |
|--------------------------------|-----------------------------|------|------|------|
| <i>Pleuropogon hooverianus</i> | North Coast semaphore grass | none | CT | 1B.1 |
| <i>Streptanthus morrisonii</i> | Morrison's jewel flower | none | none | 1B.2 |
| <i>Usnea longissima</i> | Methuselah's beard lichen | none | none | 4.2 |

In April through June of 2014 surveys were conducted for sensitive plant species of proposed trail reroutes, trail reconstruction and trail decommissioning locations in areas potentially affected by proposed project activities. Surveys focused on determining the potential presence of protected plant species within project limits. One sensitive species, *Usnea longissima* was observed within the proposed project area during these surveys.

Methuselah's beard lichen (*Usnea longissima*) – This is an epiphytic fruticose lichen which drapes the branches of trees and occasionally shrubs in mature coniferous forest habitats. *Usnea longissima* is a pale greenish or silvery-yellowish-green. Main branches are up to 3m in length with numerous dense side branches of about equal length (30 – 40mm). It is limited to patchy distribution on both the forest stand and landscape level (Keon & Muir 2002). *Usnea longissima* occurs in old-growth and late-successional conifer stands, hardwood stands, and riparian areas, particularly in coastal climates or on fogswept mountains where humidity is high. It is usually infrequent but can be locally abundant. Within ARSNR and ACSRA *Usnea longissima* is found in limited locations within the project area. No trees or shrubs where *Usnea longissima* is found will be removed or trimmed as a result of the proposed project. No impact.

SPECIAL STATUS WILDLIFE SPECIES

The results of a search of the California Natural Diversity Database (CNDDDB) for special-status wildlife species that have been documented in ARSNR or could potentially occur in or near the project area are described below.

California Freshwater Shrimp (*Syncaris pacifica*) This federal and state listed endangered species is found in low elevation, low gradient, streams where riparian cover is moderate to heavy (CNDDDB 2013). This species prefers shallow pools away from the main stream flow; in winter it prefers undercut banks with exposed roots and in summer near leafy branches touching the water (CNDDDB 2013). This species is known to occur in Austin Creek; no records from Fife Creek.

Foothill Yellow-legged Frog (*Rana boylei*). This California Species of Special Concern occurs in clear rivers and creeks with gravel or rock substrate and sunny banks in forest or woodland habitats (Jennings and Hayes 1994). Foothill yellow-legged frogs have been documented in nearby Austin Creek State Recreation Area, and in several Sonoma County streams. Suitable habitat for this highly aquatic frog occurs in Fife Creek adjacent to the project area.

Sonoma Tree Vole (*Arborimus pomo*). This California Species of Special Concern occurs in old growth and other forests, mainly Douglas fir, redwood and montane hardwood-conifer habitats. Although there is only one occurrence of this species in the general area listed on the CNDDDB, (East Austin Creek near Old Cazadero / Fort Ross Rd crossing over east Austin Creek) there is habitat in the project area (CNDDDB 2013). Sonoma tree voles are active all year, mostly nocturnal outside of the nest, but feed throughout the day on needles stored in the

nest and has a range that encompasses one to several fir trees. Sonoma tree voles breed year-round, but mostly February through September. Needles and twigs are gathered primarily during the night so project activities should not adversely affect this species (CDFW 1990).

Steelhead, Central California Coast DPS (*Oncorhynchus mykiss irideus*). This federally threatened species occurs in Fife Creek, East Austin Creek and its' tributaries. Best Management Practices and project specific measures will be in place to prevent sediments or contaminants from entering the watershed and affecting aquatic environments.

California Red-legged Frog (*Rana draytonii*). This federally threatened frog is found mainly near ponds in humid forests, woodlands, grasslands, coastal scrub, and streamsides with plant cover, and is frequently found in woods adjacent to streams. Breeding habitat is in permanent or ephemeral water sources: lakes, ponds, reservoirs, slow streams, marshes, bogs and swamps. Suitable breeding locations occur in Pond Farm's Fish Pond near a portion of the project area. This species can be found far from suitable breeding locations including dense vegetation which could potentially provide cover. California red-legged frogs have been observed in Fife Creek and its' tributaries.

Northern spotted owl (*Strix occidentalis caurina*). This federally threatened species historically occurred in ARSNR and likely ACSRA and may be present within portions of the park. Habitat consists of old forest types in the northern portion of its range to a mix of old and younger forest types in the southern part of its range (from the Klamath Range to Marin County). The northern spotted owl (NSO) is intolerant of habitat disturbance. Each nesting pair needs a large amount of land for hunting and nesting. Barred owls (*Strix varia*), a recent arrival from the eastern United States and Canada, have displaced NSO as barred owls are generally more aggressive and out-compete NSO.

The most recent NSO documented in ARSNR was in 1989 (including formal surveys in 2005 – 2007 and 2014), while barred owls have been observed within the park unit since 2001.

Marbled murrelet (*Brachyramphus marmoratus*). This federally threatened seabird is unique in that it nests within old growth forests. In Northern California, nests have been detected up to 22 miles inland. The species is threatened by habitat loss and disturbance. Marbled murrelets (MAMU) range from the Aleutian Islands in Alaska to Point Sal in California. In 2011, critical habitat was designated by the USFWS for MAMU and includes both ARSNR and ACSRA. Surveys for MAMU in 2001 and 2014 have not resulted in detection of this species.

SENSITIVE NATURAL COMMUNITIES

Sensitive plant communities are those that are regionally uncommon or unique, unusually diverse, or of special concern to local, state, and federal agencies. Removal or substantial degradation of these plant communities constitutes a significant adverse impact under CEQA.

CDFW's California Natural Diversity Database (CNDDDB) maintains a list of the state's plant communities (also known as alliances) and identifies those of high inventory priority due to their rarity and threat. These are considered sensitive natural communities by regulatory agencies.

The CDFW classifies the *Sequoia sempervirens* Forest Alliance as a sensitive natural community. This community is found within a portion of the project area. Specifically the trail reroute which connects the picnic area to East Ridge Trail will pass through *Sequoia sempervirens* Forest Alliance. This reroute is designed to reduce existing impacts associated

with oversteepened alignments that cause erosion and sedimentation in proximity to a few residual old growth redwood trees. No redwood trees will be removed as a result of this project. Tree root impacts will be minimized by retaining a buffer of five times the diameter of breast height (DBH = diameter of the tree at 4.5 feet above maximum ground level elevation) on all redwoods.

SUDDEN OAK DEATH

Sudden Oak Death (*Phytophthora ramorum*) threatens coastal forests in California and Oregon. Currently found in 14 coastal counties in California from Monterey to Humboldt. As such, Sonoma County is subject to state and federal quarantine regulations for activities likely to spread sudden oak death (SOD). ARSNR and ACSRA are known to be infested with SOD.

To date, hundreds of thousands of tanoak and oak have been killed by this disease. In addition, more than 30 other native tree and shrub species are susceptible to the organism, yet most of these species suffer only minor damage, limited to leaf spots or twig dieback. SOD may be transported to new areas when infected plants, infested soil, or contaminated water are moved into uninfested areas.

INVASIVE PLANT SPECIES

The California Invasive Plant Council (Cal-IPC) maintains an inventory of invasive plants that may have land management implications throughout the State. The CAL-IPC list for the floristic region that includes ACSRA and ARSNR contains non-native California species that are typically found in the region. Some of these listed species occur sporadically in low population numbers or as small patches in the project area, including along some portions of the proposed trail alignment.

The potential invasiveness of Himalayan blackberry and several of the non-native grasses is rated high, based on the following Cal-IPC definition:

“High – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.”

“Moderate – These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.

“Limited – These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic”.

California State Parks manages its park units for ecological function and has a program in place to manage invasive species. Both ACSRA and ARSNR have a focused program that seeks to control or eliminate invasive nonnative species. Species which are actively managed by California State Parks in or adjacent to the project area are; Yellow star thistle (*Centaurea*

solstitialis, Cal-IPC rated high), Fennel (*Foeniculum vulgare*, Cal-IPC rated high), Himalayan blackberry (*Rubus armeniacus*, Cal-IPC rated high), Fullers teasel (*Dipsacus sativus*, Cal-IPC rated moderate), French broom (*Genista monosperma*, Cal-IPC rated moderate), and Klamathweed (*Hypericum perforatum*, Cal-IPC rated moderate). Following project completion surveys will be conducted to ensure that no new invasive species populations result from the project work. If new populations are detected they will be prioritized for treatment to prevent their spread.

| | <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|---|---|--|---|-------------------------------------|
| WOULD THE PROJECT: | | | | |
| a) Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a sensitive, candidate, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 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 California Department of Fish and Game or the U.S. Fish and Wildlife Service? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Have a substantial adverse effect on federally protected wetlands, as defined by §404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input 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) **SPECIAL STATUS PLANTS:** Suitable to marginally suitable habitat occurs within the project area for twelve special status plant species, Napa false indigo, Baker's manzanita, Cedars fairy lantern, holly-leaved ceanothus, dwarf soaproot, Pennell's bird's-beak, serpentine daisy, fragrant fritillary, white-flowered rein orchid, North Coast semaphore grass, Morrison's jewel flower, and Methuselah's beard lichen. Only Methuselah's beard lichen was detected during surveys conducted between April and June of 2014. No removal of Methuselah's beard lichen would occur as a result of the proposed project and standard tree protection measures incorporated into the project would avoid impacts to any trees with support Methuselah's beard lichen. **Integration of Standard Project Requirements Bio-10 and Bio-11 would reduce the potential impact to special status plants to a less than significant level.**

SPECIAL STATUS WILDLIFE: The proposed project will involve working within close proximity to sensitive habitats that may, or are known to, support special-status species including; California red-legged frog, foothill yellow-legged frog, California freshwater shrimp, steelhead, northern spotted owl, marbled murrelet and Sonoma tree vole. With biological oversight and adherence to State Parks' construction practices and environmental standards, significant biological impacts are unlikely to occur as a result of the proposed project. To ensure impacts on special-status species and sensitive resources are avoided, the following recommendations should be implemented:

The project proposes to replace one wood pedestrian bridge on a Class I stream and construct, upgrade and decommission several watercourse crossings consisting of puncheons or rock crossings on Class II and III watercourse crossings. The bridge is located along Fife Creek. Fife Creek supports steelhead trout a species listed as threatened by the National Marine Fisheries Service. The section of Fife Creek where the work is proposed is seasonal and is generally dry between the months of June and December. All bridge work will occur during the dry season. Standard erosion control measures will be applied to these sites.

California red-legged frog (CRLF) is potentially present within the project site as a breeding site is located in the pond at Pond Farm. Therefore CRLF presence within the project site is assumed. Avoidance measures described below are incorporated into the project.

The redwood groves found within ARSNR and ACSRA provide potential habitat for northern spotted owl listed as federally threatened and for marbled murrelet listed as federally endangered.

Barred owls are known to occupy Armstrong Woods. Barred owls, though similar to northern spotted owls (NSO), are larger and more aggressive. It is possible that NSO have been displaced by barred owls. Regardless, the potential for the presence of NSO exists.

The most recent NSO documented in ARSNR was in 1989 (including formal surveys in 2005 – 2007), while barred owls have been observed within the park unit since 2001. Marbled murrelets (MAMU) have not been observed in ARSNR. MAMU surveys in 2001 did not result in detection. Surveys for both NSO and MAMU are currently being conducted for a water system project. Should these surveys result in no detection of either species, temporal noise restrictions (see below) associated with one or both species (depending upon survey results) would not be required.

To ensure impacts on special-status species and sensitive resources are avoided, Project Requirements Bio-1, Bio-2, Bio-3, Bio-4, Bio-5, Bio-6, Bio-7, Bio-10, Bio-11, Bio- 12, Bio-13 and Bio-16 will be implemented.

NESTING BIRDS: The removal or trimming of trees and shrubs during nesting season could result in mortality of birds. Indirect impacts on breeding and nesting behavior due to construction noise could occur from activities along the trail alignment and creek corridors, and site preparation and other trail construction activities near the corridor. Construction activities, construction noise, and the removal of trees and shrubs during the February-September breeding season could adversely affect special-status nesting birds, which would be a potentially significant impact.

Generally, Construction activities involving removal of vegetation or disturbance to existing habitats will occur outside of the critical breeding period to protect breeding birds. Work outside of the breeding season will not result in impacts to nesting birds. For construction between August 1 and February 1 (with no NSO or MAMU presence, see above) trail construction could proceed as scheduled.

For construction between February 1 and August 1, a qualified biologist shall conduct a pre-construction survey to determine if nesting is occurring in trees along the alignment of the trail section to be constructed. The survey shall occur within 14 days prior to the initiation of trail construction activities during the early part of the breeding season (February through April) and no more than 30 days prior to the initiation of these activities during the later part of the breeding season (May through August). An active nest would be indicated by one or more of the following:

- Incubation behavior of adults (e.g., regular periods of “disappearance” into the same location followed by short, secretive flights to forage)
- Extreme distress and alarm calls when in close vicinity of the nest tree
- Observation of food being carried on the beak or claws to the nest If the nests or nesting behavior are observed, the proposed trail alignment shall be located at least 100 feet from the nest tree and the following measures shall be implemented to protect the nest site:
 - 1) Establishment of a buffer using flagging or staking around the tree in accordance with CDFW recommendations until the young have fledged. The nest tree shall be monitored a minimum of once per week to confirm that the young have fledged and that no new nesting pairs are present before the buffer is removed.
 - 2) If it is not feasible to delay or modify construction activities around the tree, the CDFW shall be contacted to discuss alternative buffer options.

Integration of Standard Project Requirements Bio-14 would reduce the potential impact to nesting birds to a less than significant level.

- b) **RIPARIAN HABITAT:** Drainage tributaries to Fife Creek are distributed throughout the project site. The proposed trail realignments would cross over one of these drainages and require the construction of a puncheon. Upgrades to existing (retained) trails would result in the replacement of the existing Waterfall Trail bridge crossing over Fife Creek (Class I). Several existing small crossings would also be upgraded along existing trail from culverts to

puncheons. Decommissioning of abandoned alignments would result in the removal of two culverted crossings.

The vegetation cover along the riparian corridors consists of *Sequoia sempervirens* Forest Alliance, *Pseudotsuga menziesii-Notholithocarpus densiflorus* Forest Alliance, and *Quercus garryana* Woodland Alliance. There are emergent plants within the rocky channels of these creeks/seep/swales.

The construction and installation of the trail would to the greatest extent possible, work outside of the defined creek channel at the top of bank. Bridges would vary in length according to channel width, but generally would not exceed five feet in width. Bridge footings would be installed in a manner not to impede creek water flow, cause soil deposition/erosion, or result in damage to the stream channel. The installation of rock or bridge crossings at tributary creeks and drainage ways could result in the placement of fill within and adjacent to creeks protected by Section 404 of the Clean Water Act and Section 1601-1603 of the Fish and Wildlife Code. The placement of rock fill and bridge support structures within tributary creek channels and the mainstem of Fife Creek could be a potentially significant impact if the drainage and habitat function, including water quality, of the tributary creeks are not retained. Consultation with the US Army Corps of Engineers and the California Department of Fish and Wildlife would provide guidance needed to verify that proposed crossings would not degrade water quality and riparian and instream habitat. Implementation of the following measures would reduce this impact to a less than significant level.

Prior to creek crossing construction, State Parks shall contact the U.S. Army Corps of Engineers and the California Department of Fish and Wildlife to determine if the project requires either a "Permit for Discharges of Dredged/Fill Material into Waters of the U.S." from the U.S. Army Corps of Engineers (Corps) pursuant to Clean Water Act, Section 404, or a "Streambed Alteration Agreement" from the California Department of Fish and Wildlife pursuant to Section 1601-1603 of the State Fish and Wildlife Code. The approval or permit conditions from either or both of these agencies shall be incorporated into the project plans.

At a minimum, the following conditions are typically incorporated into such plans:

- Work within the creek corridor shall be confined to the period April 15 to October 15. Revegetation work would not necessarily be confined to this period.
- No heavy equipment shall operate in the creek where there is water.
- Any equipment or vehicles crossing the creek, or operating adjacent to the creek channel or wetlands, shall be cleaned of all external oil, grease, and materials that, if introduced to water, could be deleterious to aquatic life, wildlife or riparian habitat.
- Any equipment or vehicles crossing drainages, permitted for traffic crossings, or operating adjacent to the creek channel or wetlands, shall be checked and maintained daily to prevent leaks of material that, if introduced to water, could be deleterious to aquatic life, wildlife or riparian habitat.
- The trail construction manager shall take whatever precautions are necessary to minimize the discharge of fine sediment from the work site to the waters of the US or State, including the use of silt and debris fencing to catch sediment, spreading overburden, and mulching with native materials.

- Adequate erosion and siltation control measures shall be used to prevent turbid or silt-laden water from entering the tributary creek or drainage ways to the creek. All erosion controls shall be in place prior to commencement of work and shall be maintained for the duration of project construction.
- The limits of the work site and all environmentally sensitive areas shall be marked to prevent equipment and worker access.
- Bridge building materials and/or construction equipment shall not be stockpiled or stored where they could be washed into the water or where they will cover aquatic or riparian vegetation.
- Debris, soil, silt, bark, rubbish, creosote-treated wood, raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic life, resulting from project related activities, shall be prevented from contaminating the soil and/or entering the waters of the state. Any of these materials, placed within or where they may enter the creek, by Operator or any party working under contract, or with the permission of the Operator, shall be removed immediately.
- During construction, the contractor shall not dump any litter or construction debris within the riparian creek zone. All such debris and waste shall be picked up daily and properly disposed of at an appropriate site.
- If, in the opinion of the Corps or Department, conditions arise, or change, in such a manner as to be considered deleterious to the stream or wildlife, operations shall cease until corrective measures approved by the Corps or Department are taken.

The above conditions would be finalized by the US Army Corps of Engineers or Department of Fish and Wildlife subsequent to the approval of permit or agreement applications. In addition to agency consultation, implementation of **Bio-2, Bio-3, Bio-4, Bio-6, Bio-7, Bio-8, and Bio-9** will limit impacts to riparian habitats to a level of less than significant.

SENSITIVE NATURAL COMMUNITY: The *Sequoia sempervirens* Alliance within the project area is considered a sensitive natural community since it contains mature forest components, especially mature redwood trees that provide valuable habitat for both common and special status wildlife species. This project has been designed to minimize root impacts by avoiding the root health zone (5 times DBH) where possible.

Implementation of Standard Project Requirement Bio 2: Sensitive Natural Communities would reduce impacts to the sensitive *Sequoia sempervirens* Alliance vegetation type to a less than significant level.

- a) Under the Clean Water Act Section 404 and regulations administered by the U.S. Army Corps of Engineers (Corps), a wetland is an area that is:

” ...inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.”

By the Corps definition, three defining conditions or criteria must be present to define an area as a wetland – hydrology, soil, and vegetation. The proposed trail alignment and staging areas would not intercept or cross a wetland, or result in an alteration of wetland

hydrology. The proposed trail realignment has been designed to avoid impacts to wetlands, and any nearby wetlands. No impact.

- b) The proposed project would not impede fish passage or wildlife movement. No barriers will be installed in and/or near Fife Creek or any other fish bearing stream. Potential impacts from the proposed project would have no impact on fish passage or wildlife movement. No impact.
- c) As stated in the Environmental Setting above, Sonoma County is subject to state and federal quarantine regulations for the pathogen *Phytophthora ramorum*, which causes the often fatal disease known as Sudden Oak Death in numerous species of native plants, especially oaks. Project activities could inadvertently transport this disease to new uninfected locations through pathogen spores in soil or on infected plant material that stick to construction vehicles, equipment, or personnel.

Implementation of Specific Project Requirement Bio 15: Sudden Oak Death would reduce any potential impacts to a less than significant level.

- d) This project does not conflict with any Habitat Conservation Plans, Natural Communities Conservation Plans, or other approved habitat conservation plan. No impact.

V. CULTURAL RESOURCES.

ENVIRONMENTAL SETTING

Armstrong Redwoods State Natural Reserve (SNR) and the adjacent Austin Creek State Recreation Area (SRA) are located in central Sonoma County, approximately three miles north of Guerneville. The SNR is situated north of the Russian River in a deep canyon bisected by Fife Creek. Fife Creek enters the park from the north and drains south into the Russian River. Situated 71 feet above sea level in the Pacific Coast Range, the majority of SNR land is located on a flat valley floor covered with a dense grove of virgin redwoods (*Sequoia sempervirens*). The tree covered valley is surrounded by hills that rise abruptly to the east and west. This area tends to stay cooler than the adjacent Austin Creek State Recreation Area (SRA) to the north. Classified as temperate rainforests, Coast Redwoods need a wet, mild climate to survive. The climate in this region is variable with an average rainfall of 55 inches per year. Often during the summer months, morning fog blankets the SNR, resulting in cool morning temperatures with considerably higher temperatures in the afternoon.

Armstrong Redwoods SNR was first established as Armstrong Redwoods *State Park* in 1934. Prior to that year, it was a county park; the heirs of James Boydston Armstrong having 'sold' the land to Sonoma County in 1917. Shortly after the park came under state ownership, men employed by both the Works Progress Administration (WPA) and the Civilian Conservation Corps (CCC) created and installed much of the early park infrastructure, park furniture, and larger park features such as the Forest Theater in the mid-to-late 1930s and later.

The assembling of lands to create Austin Creek SRA began in the 1964 with the acquisition of approximately 3900 acres in August of that year (DPR 2014). In the following year, the state purchased surrounding parcels from resident land owners and cleared the lands of buildings and other such improvements. Perhaps the best known parcel acquired for addition to Austin Creek SRA is Pond Farm, then owned by Marguerite Wildenhain, renowned ceramic artist and master potter. Unlike other former property owners, with the sale of her property to the state Marguerite secured a life tenancy to remain at Pond Farm.

The Area of Potential Effect (APE) covers linear segments in both Armstrong Redwoods SNR and Austin Creek SRA.

CULTURAL SETTING

There are two main categories of cultural resources, the archaeological environment and the historic environment, both influenced by the resources available in the area. The topography, mild climate, and the abundance and diversity of natural resources in the region provided an ideal setting for both prehistoric and historic utilization and settlement. Archaeological and ethnographic data from studies in Armstrong Redwoods SNR, Austin Creek State Recreation Area (SRA), and the broader region suggest Native populations heavily utilized the area including the riverine and marine environments, open woodlands, foothills, and meadows surrounding the redwood park; however, these studies also indicate usage by Native peoples in the dense redwood forest of Armstrong Redwoods SNR were less frequent than in the surrounding areas. The tree density created a dark and damp environment, not necessarily conducive to habitation or resource procurement and processing.

Historic settlement in Sonoma County began in 1812, west of the project area on the Sonoma Coast, with the establishment of Fort Ross by the Russians. To prevent further Russian settlement inland, the Sonoma Mission (Mission San Francisco de Solano) was founded in 1823. Operational aspects of the California mission system resulted in gathering up indigenous peoples from throughout Northern California, including the Pomo to build the missions as forced Indian labor. Spain's Indian policy during the mission period was a combination of economic, military, political, and religious, motives. Needless to say, missionization of California indigenous people had a negative effect on these groups including the introduction of devastating disease, homicide, and loss of the native environment and food sources (Cook 1976). Following Mexican independence from Spain in 1821, large ranchos were granted throughout northern California including Sonoma County where 27 land grants were established. During this era, the primary economic mainstay in the area was cattle ranching and timber; this until the Gold Rush in 1849, which brought a large influx of people into the region. This deluge of people created an increased demand for other consumer goods, most notably, dairy products (Salisbury and Roscoe 2012).

Prehistoric and Ethnographic Background

Prehistory

Research related to the prehistory of Sonoma County suggests the project vicinity has been inhabited for at least the last 6,000 years (Fredrickson 1973a, b). During the 1940s and 1950s, with the onset of serious archaeological investigations in the region, researchers typically tried to associate the cultural chronologies of Marin and Sonoma Counties into the accepted chronology of the Bay Area (Meighan 1953, Heizer 1947). In later attempts, researchers correlated the cultural chronology of the region with that of the North Coast Ranges, which focused primarily on Humboldt and Mendocino Counties (Fredrickson 1973a; 1974). Later, it became obvious from archaeological investigations conducted in region that the data generated from these studies did not correlate well with either the Bay Area to the south or with the North Coast Ranges. This region instead, represents a transitional zone where two adjacent cultural chronologies merge (Basgall et. al. 2006).

Archaeological sites in the area appear to exhibit affinities to prehistoric cultures to the north in Mendocino County, to the east in Lake County, and to the south in the San Francisco Bay Area. Fredrickson (1973a; 1974) established a cultural sequence for the North Coast that relates only loosely to sites in the region of the project area. This cultural sequence is based on his adaptation of the taxonomic framework for Central California archaeology (Fredrickson 1973b). Originally, this framework was developed by J. Lillard and W. Purves in 1936, and was a three phased sequence grounded on studies throughout the Sacramento Delta region. These phases included "Early," "Intermediate," and "Recent" cultures (Lillard and Purves 1936). The sequence was later refined and developed further by Richard Beardsley in 1948 and 1954 who expand the system include the San Francisco Bay area. Beardsley divided the sequence into Early, Middle, and Late Horizons called the Central California Taxonomic System (CCTS) (Moratto 1984; Beardsley 1948; Lillard, Heizer, and Fenega 1939) and was widely applied to site dating and taxonomy throughout Central California.

The notion of cultural patterns was introduced by Fredrickson and is a concept that centers on the understanding that local variations to a widespread cultural-horizon existed. Fredrickson utilized a period sequence consisting of a Paleoindian Period, and Archaic Period (divided into

Lower, Middle, and Upper Periods), and an Emergent Period (divided into Lower and Upper Periods). Archaic and Emergent terms were already in use (Fredrickson 1973b) prior to Fredrickson's concept of cultural patterns. The pattern divisions developed by Fredrickson are based on cultural content while his period divisions are strictly chronological. The archaeological periods described below are derived on a sampling of sites investigated in Marin and Sonoma counties, and correlation of available archaeological data for this region. Many of these prehistoric sites have been documented in the general vicinity of the project area.

Paleoindian (Prior to 8,000 BP) -

Earliest occupation of the North Coast Range was in the Paleoindian Period (10,000-6,000 B.C). Fredrickson refers to this earliest cultural manifestation as the Post Pattern that is named after Charles Post, who discovered several Clovis-like fluted points at the Borax Lake site, CA-LAK-36. Obsidian, primarily debitage was found at Warm Springs Creek in the basal component of CA-LAK-547 has been tentatively dated to late in this period.

Lower Archaic Period (8,000-5,000 BP) -

The Borax Lake Pattern appeared in the Lower Archaic (6,000-3,000 B.C.) as defined by Fredrickson. Diagnostic of this pattern are wide stem projectile points found in Santa Rosa (Wickstrom and Fredrickson 1982). These Borax Lake wide stem points are manufactured from Franciscan chert from quarries near the coast, obsidian from local sources, and basalt from the Sierra Nevada foothills (Justice 2002). In addition to the wide stem points, crescents, and milling stones are typical artifacts recovered from sites of this period. Other Lower Archaic sites in the area include Duncan's Point Cave, Laguna Sea, and Bodega Bay (Phal 2004; Fredrickson 1984). Typically, these sites tend to be situated away from the coast and bay shores. Whether this is an accurate representation of settlement patterns or perhaps sites obscured or destroyed by rising sea levels is a topic of debate (Basgall et. al. 2006).

Middle Period (5,000-2,500 BP) -

During the Middle Archaic (3,000-1,000 B.C.) manos and milling stones are present at numerous sites in the southern region of the North Coast. Indicative of the Mendocino Aspect of the Borax Lake Pattern are concave-base points. Some sites show strong bay-side adaptation with the Berkeley Pattern represented by Ellis Landing Aspect traits. Radiocarbon dates indicate this period of occupation; however, artifact assemblages are either unclear or may point to a later occupation (Fredrickson 1984).

Upper Period (2,500-1,100 BP) -

The Houx Aspect of Fredrickson's Berkeley Pattern seems to have replaced the Borax Lake Pattern by 500 B.C. towards the beginning of the Upper Archaic Period. The Houx Aspect is viewed as an amalgamation of Borax Lake Pattern traits and Berkeley Pattern traits, which were seemingly transferred north from the San Francisco Bay Area and the Central Valley. The Houx Aspect assemblages found thus far are dominated by hunting toolkits, with projectile points of shouldered lanceolate and contracting-stem forms (Moratto 1984). It is uncertain if manos and milling stones persisted in the Houx Aspect. Basgall et al. (2006) suggest that sites of this era were once considered a rarity in Marin County; however, increasing numbers have been found in recent years along the margins of the North Bay. Sites from this period in Sonoma County are found in valleys, oak woodland habitats, and along the bay shores and

other marine settings (Basgall et al. 2006). It is thought this period is associated with an increase in diet breadth and resource intensification as these assemblages display a very broad range of food resources. It is assumed that acorns become an increasingly important component of the diet and appears to correlate with a substantial increase in the number of mortars and pestles found at sites during this period.

Emergent Period (1,100-200 BP) -

During the Emergent Period, the Clear Lake Aspect of the Augustine Pattern begins to appear after A.D. 500. Representative sites found in the Clear Lake Aspect completely lack strong ceremonial orientation and indicate a cultural divergence from sites associated with the Augustine Pattern found in the Central Valley (Moratto 1984). Side-notched and serrated-stemmed projectile points indicative of the Augustine Pattern appear in numerous sites in Sonoma and Lake Counties. In a later phase, diagnostic evidence of clamshell disk and Olivella bead manufacture has been found at several sites around Santa Rosa. This indicates a significant exchange between the inhabitants of the Central Valley and those in Sonoma County.

Typical throughout many areas of California, this period is marked by increasing sedentism, resource intensification, and social complexity and stratification. Overall, population increased during this period which results in closely spaced village sites (Basgall et al. 2006). In Emergent Period sites, artifacts typically include small, often serrated projectile points, triangular projectile points, clamshell disk beads, Olivella beads, incised tubular bird bone artifacts, and various other bone artifacts. Historic era artifacts including trade beads and worked glass begin to appear in the archaeological record as Euro-American settlers start to move into the region (Moratto 1984).

Ethnography

Ethnographic villages are recognized following the Emergent Period. The project area is situated within the territory of the Pomo (the Southwestern or Kashaya Pomo). The Kashaya people are one of seven groups known to speak Pomoan languages and the only group that has a name for them-selves (Kashaya). The name Kashaya was given to the group by a neighboring Pomoan group (Parrish 2001) and means “expert gambler.” Spelling variations in the spelling of the name include: Kacia, Kacaya, Kah-chi-ah, Kashaiya, and Ka-shiah (McLeandon and Oswalt 1978).

Traditionally the Kashaya occupied about thirty miles of the Pacific coast in the northwestern portion of Sonoma County. This strip extended from the Gualala River in the north to Duncan’s Point a few miles south of the Russian River. From west to east, Kashaya territory stretched from the coastline over four coastal ranges, varying between five and thirty miles inland (Parrish 2001; McLeandon and Oswalt 1979).

The Pomo were one of the largest settlements of Native peoples anywhere in California with an estimated population at 8,000 plus. In Sonoma, Lake, and Mendocino Counties four hundred and seventy-nine settlements have been identified (McLeandon and Oswalt 1978; Parrish 2001). Kashaya settlement varied with the season. During the cooler months inland settlements were established when the food supply depended on hunting of deer, elk, and smaller mammals. In the warmer season, the Kashaya resided closer to the sea, subsisting on abalone, mussel, fish, marine mammals, sea plants, and sea salt. Sea salt was procured for

both domestic consumption and for trade. A wide assortment of nuts, berries, seeds, greens, roots, acorns, and tubers were harvested throughout the year. Items such as tools, utensils, basketry, jewelry, and clothing were made from a variety of materials including stone, bone, shell, horn, fibers, hides, and feathers.

The Kashaya built single family conical structures constructed of redwoods slabs for shelter. The structures ranged between eight to fifteen feet in diameter with heights of six to eight feet (Bean and Theodoratus 1978). Structures in the winter months were situated on hillsides to avoid flooding. In the dryer summer months, simple semi-subterranean brush structures were built in each village. Large assembly houses approximately seventy feet in diameter were used by the village for dances and ceremonies. Sweathouses were small, and used only by the males of a village for sleeping and for daily sweats (Bean and Theodoratus 1978).

Within the Kashaya territory, Parrish's historical account (2001) estimates that the pre-contact population of the Kashaya was approximately 1,500 persons living in large villages spread over the different environmental zones. The Kashaya villages included principle and subsidiary villages that were linked to each other both politically and socially. The main residences of the headmen and women were the larger villages. These villages were accustomed to the activities of the group. Center to the Kashaya ceremonial and social life were religious and political leaders. Villages were comprised of extended family units which provided protection, moral support, and identity to individuals. Codes of personal responsibility and family honor were strongly encouraged, and relationships beyond the group were discouraged. Significant personal events for each individual were celebrated with ritual and ceremony; integrating the natural, supernatural and human worlds (Parrish 2001).

Historic Background

In late summer 1821, Spanish Captain Luis Argüello led an expedition into the upper Russian River Valley. Argüello's expedition was sent out by then Governor Sola, in response to information that English or American trappers had established themselves in the region. In 1836, further exploration was carried out under the authority of General Mariano G. Vallejo. Between 1836 and 1842, Vallejo, his brother Salvador, and Indian ally Chief Solano carried out numerous campaigns against hostile Indians in the Russian River allowing greater settlement of the region. By 1845 several ranches were established in the vicinity of the Russian River and present day Santa Rosa. Early settlers included Mark West, John Wilson and Joaquin Carrillo (Tays, 1934).

The gold rush of 1848 and 1849 brought thousands of newcomers into California and after 1850, settlement of the Russian River region accelerated. In 1860, R.B. Lunsford established a lumber camp in a large flat area on the north side of the Russian River. From here he and his men cut trees for shipment, in various forms, to Santa Rosa, San Raphael, Petaluma and Sonoma. The camp referred to as Stumptown, prospered (Wright 1975; Markwyn, 2001). In 1867, George E. Guerne arrived in Stumptown, purchased a suitable flat area of land and started selling land to create a subdivision now known as Guerneville, or Guerneville Park. Shortly thereafter Guerne erected a sawmill and Stumptown took on the name Guerneville (Wright 1975, DPR 2001). Also in 1867, newcomers Thomas H. Stone and A. C. Laud established claims on 140 and 100 acres, respectively, of valley property 3 miles north of Guerneville. By 1869 Laud would become the sole owner of these 240 acres, which are part of

present-day Armstrong Redwoods State Natural Reserve and Austin Creek SRA (DPR n.d.).

Armstrong Redwoods SNR

In 1874, Colonel James Boydston Armstrong moved his family to Sonoma County from Ohio. During the civil War, Armstrong was commissioned a Colonel in the Union Army – a title he would be known by ever after. In partnership with Joseph Estep, Armstrong purchased 240 acres of land from H.T. Hewitt (DPR n.d.). The following year, Armstrong bought out Estep's interest in the property and also purchased an adjoining 160 acre parcel (DPR 1975). In 1876 Armstrong added 40 more acres to his holdings. A great portion of this 440 acre holding forms present-day Armstrong Redwoods State Natural Reserve. Armstrong's business ventures included involvement in the Guerneville lumber boom of the 1870's; logging and owning and operating a sawmill site north of Guerneville. Armstrong's mill produced approximately 5 million board feet of lumber per year (DPR 2012).

In 1878, Armstrong gifted 440 acres of land to his daughter, Kate Armstrong. Colonel Armstrong wanted this property (an old growth redwood grove) to be preserved and, eventually, operated as an arboretum. The Colonel tried for many years to ensure the preservation of the grove. In 1891, he attempted to establish an administration with Luther Burbank as the chairman of its first committee. Unfortunately, Armstrong was unable to realize his plan because it required a special act of the State legislature and such support did not exist at the time. Despite this defeat, Armstrong continued to work and plan toward the realization of his dream, the preservation of his beloved grove of redwoods (DPR 2012).

Due to financial and familial pressures, Kate deeded 190 of her 440 acres to her brother, Walter. This parcel was later purchased by Armstrong family friend, Harrison M. LeBaron (DPR 2012). Kate Armstrong died in 1898 and Colonel Armstrong died in 1900. The struggle to preserve the grove was left to Lizzie Armstrong Jones – Armstrong's surviving daughter – and the LeBaron family (DPR 2012). In 1909, a bill for the acquisition of the Grove was passed by both houses of the state legislature, but then Governor Gillete 'pocket vetoed' the bill due to concerns about the State's ability to administer the Grove (DPR n.d.). In 1913, Grove area locals started a county-wide campaign to persuade their county supervisors to purchase the Grove.

In 1917, the continued efforts of Lizzie Armstrong and the LeBarons were rewarded when the County of Sonoma purchased the property for \$80,000.00. The Grove was operated by Sonoma County until 1934 when the State took ownership of it as part of the financial arrangement whereby Sonoma Coast State Park was purchased. The grove was opened to the public as Armstrong Redwoods State Park in 1936.

While general public enjoyment of Armstrong Redwoods occurred even during Colonel Armstrong's ownership, large-scale infrastructure development did not begin until the 1930s. Between 1933 and 1939, men from both the WPA and the CCC cleared flatter areas within the park and constructed camp and picnic sites in the park. Additional maintenance, conservation and construction work included construction of a large Community Hall, an outdoor theater, footbridges spanning Fife Creek and the construction of various roads and trails.

In 1964 the grove's status was changed from State Park to State Reserve to reflect a greater understanding of its ecological significance. This change in status provides a more protective management of the parks significant resources (DPR 2012). In 1975, DPR removed all campsites from Armstrong Redwoods SNR as part of a plan to reduce overall visitor impacts

and further protect the vegetation throughout the park. In 2004, Armstrong's classification was changed once again, this time to State *Natural Reserve*. In the few years following, DPR removed additional, small, structures and other visitor use facilities, such as camp stoves and footpaths.

Austin Creek SRA

Austin Creek State Recreation Area (SRA) is named for Austin Creek which in turn is named for pioneer settler Henry Austin who came to Sonoma County and settled on the east bank of the mouth of the creek in 1856. Austin Creek originates in an isolated area known as The Cedars, approximately 3 miles northwest of present day Austin Creek SRA, and flows in a south-easterly direction, through the park, to join up with the Russian River approximately 10 miles southwest of Armstrong Redwoods SNR.

Unlike Armstrong Redwoods SNR, the lands of Austin Creek SRA, were devoid of the large stands of redwoods that attracted early loggers to the Russian River Valley. Instead, the upper reaches of the Russian River Valley attracted homesteaders looking for land to raise crops and stock. The first recorded land owner was Leonidas Walker who, along with his brothers, settled in Sonoma County in 1867. In 1875, Walker received the patent to 160 acres of land located along Fife Creek. The Walker Ranch lands remained in the Walker family until 1939, when Leonidas' son John sold the entire 160 acre ranch, minus one acre containing the family's home, to Gordon and Jane Herr. In 1944, after the death of John Walker, his widow sold the remaining one acre and house to the Herrs.

It was the Herrs, devoted art enthusiasts, who brought Marguerite Wildenhain to Pond Farm, to establish an art community reminiscent of the Bauhaus in Germany. In 1942, Marguerite arrived at the Walker Ranch and with the assistance of Gordon Herr, converted the old barn into a pottery studio. Shortly thereafter Gordon Herr designed and constructed a small cabin for Marguerite to use as her residence. The onset of World War II would bring all plans for the Herr's and Marguerite's artist colony to a halt.

Following the end of the war, plans for the colony were revived and by 1949, students began arriving. The art colony was short lived however due to differences amongst the instructors. In 1952, Jane Herr, an enthusiastic endorser of the colony, died and Gordon Herr soon lost interest in both the idea of the artist's colony and Pond Farm itself. In 1956, Marguerite purchased 7.8 acres of the former Walker Ranch from Gordon Herr; the parcel included her home, the studio, and gardens she had constructed while she lived there.

State Parks began acquisition of land for the future Austin Creek SRA in 1964, with an initial purchase of approximately 3,900 acres. In 1966, the state purchased Marguerite's 7.83 acre parcel of land. While Wildenhain and her admirers fought against the purchase of her property, an agreement was reached to grant Wildenhain life tenancy at Pond Farm. Marguerite continued to provide pottery classes until 1980 when she stopped teaching altogether. Marguerite passed away at Pond Farm in 1985.

Historic Resources

While there are no historic features located within the APE for this project, the ponds of Pond Farm Pottery, a National Historic Register listed property are located adjacent to one segment of the Pool Ridge Trail. Although located near one segment of the Pool Ridge Trail, the ponds

are located only within viewing distance the proposed project will not make them easier to access.

Archaeology

An archaeological survey was conducted in the park by Francis Riddell and a contingent from San Francisco State in 1969. This survey included the intermittent creek which enters the SNR from the northwest and joins Fife Creek in the middle of the park (west branch of Fife Creek). This archaeological investigation proved negative for the presence of archaeological resources in park; however, in a cleared area adjacent to the park headquarters, evidence of a midden was located. During further research by Riddell, which included consultation with parks rangers, it was discovered that midden soil was put there as fill material to level the area. The fill was excavated from a large prehistoric site (CA-SON-530) situated further up Fife Creek approximately 300 to 400 meters above the park water tank in a large open knoll, which was formerly a vineyard. The site is located outside the project area.

District Archaeologist Breck Parkman was consulted for this project regarding the archaeological resources in Armstrong Redwoods. Parkman indicates he would not expect to find pre-contact sites in Armstrong Redwoods. Legend has it that the area now known as Armstrong Grove was especially shunned by Native People, as the darkness and eerie silence (lack of wildlife) was indicative of the “evil spirits” dwelling therein. The grove was referred to as the “Dark Place” (Wright 1975). It is probable that the creeks in the park were used as transportation routes prehistorically from inland camps to and from the coast to procure resources; however, it is unlikely that the area was habituated prior to contact.

An archaeological survey was conducted in support of this trail resurfacing project in May 2014. Three State Park’s archaeologists from the Northern Service Center (NSC) conducted the survey. This survey included walking the route of the trails to be resurfaced and proposed reroutes where ground disturbing activities are proposed. All of the trails and proposed re-routes were subjected to an archaeological pedestrian survey. Special attention was given to those areas where re-routes will be constructed and within areas that will be subjected to mechanical ground disturbance.

During this investigation, no previously undocumented archaeological resources (pre-contact or historic) were discovered by DPR State Park archaeologists in the project area. The results of this current investigation suggests that significant archaeological deposits will not be impacted by project work; however, given the ambiguity of archaeological sites (often buried in subsurface deposits) project requirements have been developed that will insure the protection of cultural materials discovered inadvertently during project implementation.

| | <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|--|---|--|---|-------------------------------------|
| 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 type="checkbox"/> | <input checked="" type="checkbox"/> |

- c) Disturb any human remains, including those interred outside of formal cemeteries?

CRITERIA FOR DETERMINING SIGNIFICANCE

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

DISCUSSION

- a) The proposed work will improve and maintain the East Ridge and Pool Ridge trails within Austin Creek State Recreation Area (ACSRA) and Armstrong Redwoods State Natural Reserve (ARSNR). There are no historic resources located within the APE for this project. No Impact.
- b) As indicated from archival research and past and present field investigations, archaeological deposits appear not to be present in the project area for pedestrian trail resurfacing, upgrades and re-routes in either Armstrong Redwoods SNR or Austin Creek State Recreation Area.

Inadvertent Finds - Given the inherent nature of archaeological deposits, often contained in subsurface deposits, there is always a possibility of encountering such resources despite conducting the proper investigative work. To account for the inadvertent discovery of archaeological resources during project work, DPR will implement the following Standard Project Requirement. Implementation of **Specific Project Requirements Cult 1-5** and **Standard Project Requirement 1** will ensure that impacts resulting from the project will remain less than significant.

- 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. Implementation of **Standard Project Requirement Cult 2** will ensure that impacts resulting from the project will remain less than significant.

VI. GEOLOGY AND SOILS.

ENVIRONMENTAL SETTING

Geology

Armstrong Redwoods State Natural Reserve (ARSNR) and Austin Creek State Recreation Area (ACSRA) are situated within the Coast Ranges Geomorphic Province, a series of northwest -trending mountain ranges and valleys that are a result of folding and faulting (California Geological Survey 2002). These ranges and valleys roughly parallel the San Andreas Fault. Mountain top elevations average 2000 to 4000 feet amsl (above mean sea level), with occasional peaks that rise above 6000 feet amsl. Thick Mesozoic and Cenozoic sedimentary strata comprise the bulk of the Coast Ranges. The San Francisco Bay separates the northern and southern Coast Ranges.

Franciscan Complex rocks underlie ARSNR and ACSRA (California Department of Conservation 2012a). The Franciscan is a jumbled, heterogeneous assemblage of rock blocks that represent varied physical characteristics. Specific rock types mapped in the general area of the project include sandstone, metagraywacke, shale, conglomerate, chert, greenstone, and peridotite (serpentinized ultramafic rock). Most of these rocks are Late Jurassic (about 165 million to 146 million years ago) and early Cretaceous (146 million to 100 million years ago) in age.

Topography

The project area consists mostly of moderately steep to steeply sloping terrain in the Fife Creek drainage, which is a narrow stream course hemmed in by steep canyon slopes. Elevations in the project area range from approximately 120 feet amsl near the beginning of the East Ridge Trail adjacent to the Visitor Center to approximately 1720 feet amsl at the terminus of this trail where it intersects with the East Ridge Fire Road.

A portion of the project area near the maintenance yard lies adjacent to the toe of a large landslide (O'Neil 2013). The trails in this area avoid crossing the landslide area.

Seismicity

Sonoma County is a seismically active area. The last major earthquakes in Sonoma County were the 5.6 and 5.7 M_w (moment magnitude) earthquakes on the Healdsburg fault in Santa Rosa in 1969 (Wong and Bott 1995). The historically active San Andreas Fault Zone is situated approximately 12 miles to the west of the project area (California Department of Conservation 1994). Displacement on this fault zone has occurred within the last 200 years, including the 7.9 M_w "San Francisco Earthquake" of 1906 (California Department of Conservation 2012b).

The Rodgers Creek and Healdsburg Fault Zones lay approximately 10 miles east of the project area. Holocene fault displacement (during the past 11,700 years) has been identified on the Rodgers Creek Fault. Parts of the Healdsburg Fault Zone exhibit fault displacement during the late Quaternary (past 700,000 years). Pre-Quaternary faults (older than 1.6 million years) or faults without recognized Quaternary displacement are mapped near the project area. Seismic data analysis indicates that 8.5 and 7.5 M_w earthquakes can be expected for the San Andreas and the Healdsburg-Rodgers Creek faults respectively (Sonoma County 2008).

Earthquakes of 8.0 M_W or more can be expected every 50 to 200 years on the San Andreas Fault.

Although potentially susceptible to seismic events, ARSNR and ACSRA do not occur within an Alquist-Priolo Special Studies Zone (California Department of Conservation 2012c). A moderate to strong ground-shaking hazard from a 7.1 M_W earthquake is calculated for the general project area (Sonoma County 2008).

Soils

The National Cooperative Soil Survey of the USDA Natural Resources Conservation Service (NRCS) has mapped the soils of Sonoma County and 11 soil mapping units occur within project boundaries (USDA 2014). These are:

Table 5 - Soils / Characteristics

| Soil Unit | Percent Occurrence |
|----------------------------|--------------------------------|
| Boomer loam | 50 to 75 percent slopes |
| Hugo very gravelly loam | 30 to 50 percent slopes |
| Hugo very gravelly loam | 50 to 75 percent slopes |
| Hugo-Josephine complex | 50 to 75 percent slopes |
| Laughlin loam | 2 to 30 percent slopes |
| Laughlin loam | 50 to 75 percent slopes |
| Laughlin loam | 50 to 75 percent slopes eroded |
| Rock land | Less than 5 percent |
| Sobrante loam | 15 to 30 percent slopes |
| Suther loam | 30 to 50 percent slopes |
| Yorkville-Laughlin complex | 30 to 50 percent slopes |

USDA 2014

The soils listed above occupy mostly steep to very steep slopes. More level ground occurs near the Pond Farm and on the ridge top near the Gilliam Creek Trailhead. With the exception of the excessively drained Rock land soil mapping unit, all of the soils within project boundaries are well drained to moderately well-drained. The Rock land soil mapping unit occurs only at the start of the East Ridge Trail near the Visitor Center.

All of the soils in the project area have developed in place (residual soil material) from various underlying parent material consisting of sedimentary, igneous, or metamorphic (including metavolcanics) rocks. Soil depths range from 10 to 60 inches; depth to the water table is more than 80 inches for all soils within the project area.

The physical soil properties described by the NRCS for the soils occurring in the project area indicate that all of these soils exhibit a low shrink swell potential.

| WOULD THE PROJECT: | <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|--|---|--|---|-------------------------------------|
| 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 Special Publication 42.) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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 checked="" type="checkbox"/> | <input 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 geologic 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

- a) As described in the Environmental Setting above, the Project Site is located in a seismically active area and a moderate to strong ground-shaking hazard from a 7.1 MW earthquake is possible for the general project area. While the chance of the rupture of a known earthquake fault, strong seismic ground shaking, or seismic-related ground failure are certainly possible in this area, park visitors use these existing trails extensively. Proposed

reroutes are close to existing segments and proposed improvements occur within existing trail corridors. Therefore, this project would not substantially increase the exposure of people or structures to risk of loss, injury, or death.

i) The project site is not located within an Alquist-Priolo Earthquake Fault Zone as identified by the California Department of Conservation (2012c). No structures that are designed for human occupancy are located at the project site and are not proposed as part of this project. Therefore, there is no expected adverse effect on people or structures from surface rupture of a known fault due to this project.

ii) As described in the Environmental Setting above there are three active, or potentially active, faults within twelve miles of the proposed project, including the San Andreas Fault Zone. Earthquakes of 8.5 and 7.5 MW can be expected for the San Andreas and the Healdsburg-Rodgers Creek faults, respectively. Since no structures designed for human occupancy are part of this project there is no expected adverse effect on structures from potential future earthquakes.

While trail reroutes are included in this project, the reroutes are not located in significantly different locations from existing trails; therefore, any effects resulting from potential future earthquakes would not deviate from existing conditions.

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). None of the project's trails are located on alluvial soils that could be susceptible to liquefaction. In addition, as described above, no structures designed for human occupancy are part of this project. Impacts to the trail or on people using the trail would be less than significant.

iv) As described in the Environmental Setting above a landslide lies adjacent to a portion of the project; however, since no structures designed for human occupancy are part of this project there is no expected adverse effect on people or structures from potential future landslides. No impact.

b) A temporary increase in soil erosion and sedimentation could potentially occur during construction of the proposed project. Integration of **Standard Project Requirement Hydro-1: Erosion and Sediment Control and Pollution Prevention** (See Chapter 2) would ensure that potential impacts from erosion and sedimentation would remain at a less than significant level.

c) The project is not located on a geologic unit or soil that is known to be unstable or would become unstable as a result of project implementation and would not result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. As described in the Environmental Setting above, a landslide lies adjacent to a portion of the project; however, trails in this area avoid crossing the landslide area. No impact.

- d) As described in the Environmental Setting above, soils in the project area have a low potential for soil expansivity. Expansive soils (expansive clays) are generally plastic clays, which are not mapped by the NRCS within the project area. There would be no risks to life or property from implementation of this project; therefore, no impact.
- e) The project does not involve the installation of a septic system or leach field; no impact.
- f) No known unique paleontological or geological resources exist within the project site; no impact.

VII. GREENHOUSE GAS EMISSIONS.

ENVIRONMENTAL SETTING

Greenhouse gases (GHG) such as carbon dioxide and methane trap heat in the earth's atmosphere. Over time, increased concentrations of these gases produce an increase in the average surface temperature of the earth. The rising temperatures can produce changes in precipitation patterns, storm severity, and sea level, resulting in what is commonly referred to as "climate change."

The California State Legislature proposed and then Governor Schwarzenegger approved laws and policies to reduce the amount of GHG generated each year. As stated in Assembly Bill 32, Global Warming Solutions Act (AB 32), passed in 2006; "The State of California found that Global Warming would have detrimental effects on some of the California's largest industries including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry." AB 32 requires statewide GHG emissions in California be reduced to 1990 levels by the year 2020 and requires the California Air Resources Board (CARB) to adopt rules and regulations to achieve this goal.

Sonoma County has a variety of green initiatives intended to meet the County's GHG reduction goal:

- Participation in the Bay Area Air Quality Management District Best Practices grant program;
- Formation of an internal roadmap to guide green efforts at the Department level, implementation of a County-wide single stream recycling program and implementation of the "Slow Down Sonoma County," a driver outreach and education program that demonstrates the green benefits of safe and prudent vehicle operations;
- A remote computer management and power savings initiative and, finally;
- Pursuit of a Leadership in Energy and Environmental Design (LEED) certification for capital projects with attainment of "Silver" level certification for the Valley of the Moon Children's Home project.

The County of Sonoma has become a leader in climate protection and greenhouse gas (GHG) reduction efforts; the initiatives listed above demonstrate a commitment. Once fully implemented over time, these efforts represent an investment of over \$50 million. This investment will yield greenhouse gas reductions and provide substantial savings in power and fuel expenditures to both the county government and county residents.

The California Department of Parks and Recreation (DPR) developed a "Cool Parks" initiative to address climate change within the State Park system. Cool Parks proposes that DPR itself adapt to the environmental changes resulting from climate change. In order to fulfill the Cool Parks initiative, State Parks is dedicated to using alternative energy sources, low emission vehicles, recycling and reusing supplies and materials, and educating staff and visitors on climate change (CDPR 2008).

| | <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|--|---|--|---|-------------------------------------|
| WOULD THE PROJECT: | | | | |
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environmental? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the 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) This project would improve existing trail segments in ARSNR and ACSRA. Although some use of small internal combustion equipment (see Chapter 2, Project Implementation) would be required, this use would not generate, directly or indirectly, a significant amount of GHG that would impact the environment.
- b) As mentioned above, Sonoma County has initiated numerous programs to reduce GHG. The proposed trail improvement project would not violate any policy at the state or county level. No impact

VIII. HAZARDS AND HAZARDOUS MATERIALS.

ENVIRONMENTAL SETTING

Armstrong Redwoods State Natural Reserve (SNR) and Austin Creek State Recreation Area (SRA) comprise a combined 6,679 acres of relatively unspoiled redwood forest and open foothills. The main access road into each park is Armstrong Woods Road with several private, gated, roads providing emergency egress. Camping is not allowed within Armstrong Redwoods SNR however there is a campground in Austin Creek SRA.

The California Department of Environmental Protection (CALEPA) has the responsibility for compiling (pursuant to Government Code §65962.5) information on hazardous materials sites in California that together are known as the “Cortese” list. A review of this list found that the closest hazardous materials sites to the project area are two sites approximately 18 and 20 miles to the southeast in the communities of Windsor and Santa Rosa, respectively.

The types of materials used and stored at Armstrong Redwoods SNR and Austin Creek SRA that could be hazardous include fluids such as motor vehicle and mechanical equipment fuels, oils, and other lubricants. DPR maintains storage facilities for these fuels and lubricants within the park unit. No storage facilities, or other structures or industrial sites that could contain hazardous materials are located at the sites of the proposed project.

Airports

Six public use airports are located in Sonoma County (Sonoma County 2008). The closest airport is the Charles M. Schulz-Sonoma County Airport approximately 11 miles to the southeast of the project area. The proposed project is not within an airport land use zone/plan or within two miles of a public airport or private airstrip.

Fire Hazards

The California Department of Forestry and Fire Protection (Cal Fire) assesses fire danger throughout California based on methods that estimate fire fuel potential over a 30 to 50-year time horizon, the probability of a burn, and potential vegetation exposure to new construction (Cal Fire 2007). Cal Fire has three severity classifications: moderate, high, and very high. The project area is situated within a high fire severity zone that has been designated as a State Responsibility Area (Cal Fire 2007). Fire protection for the property is available from Cal Fire’s Monte Rio station, approximately 5 miles from the project area and the local Russian River Fire Protection District station in Guerneville (FireDepartmentDirectory.com 2012) , approximately 1 mile from the project area. Additionally, Armstrong Redwoods SNR is outfitted with fire suppression materials, but Austin Creek SRA is not.

Schools

The closest school, Guerneville School (K-8), is located approximately two miles south of the project’s southernmost boundary in the community of Guerneville (Sonoma County Office of Education 2012).

| | <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|--|---|--|---|-------------------------------------|
| 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 type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Be located on a site which is included on a list of hazardous materials 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 response plan or emergency evacuation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| h) Expose people or structures to a significant risk of loss, injury, or death from wildland fires, including areas where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

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) Construction activities associated with the proposed East Ridge and Pool Ridge Trail Improvements Project could require the use of certain hazardous materials, such as fuels, oils and lubricants associated with the operation and maintenance of vehicles and certain equipment. Generally, these materials would be contained within vessels engineered for safe storage. Spills, upsets, or other construction related accidents could result in an

inadvertent release of fuel or other hazardous substances into the environment. Integration of **Standard Project Requirement Hazmat-1: Spill Prevention and Response and Project Requirement Hydro-1: Erosion and Sediment Control and Pollution Prevention** (See Chapter 2) would reduce the potential for adverse impacts from these incidents to a less than significant level.

- b) During the project, hazardous substances could be released to the environment from construction related vehicle or equipment fluid spills or leaks. Integration of **Standard Project Requirement Hazmat-1: Spill Prevention and Response and Standard Project Requirement Hydro-1: Erosion and Sediment Control and Pollution Prevention** (See Chapter 2) would reduce the risk to on-site workers, the public, and the environment to a less than significant level.
- c) As noted in the Environmental Setting above, there are no schools within one-quarter mile of the project sites. No impact.
- d) No part of either Armstrong Redwoods State Natural Preserve or Austin Creek State Recreation Area is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5. No areas within the project sites are currently restricted or known to have hazardous materials present. No impact.
- e, f) The project is not located within an airport land use zone/plan, within two miles of a public airport, or in the vicinity of a private air strip. The project would not result in a safety hazard to people residing or working in the area. No impact.
- g) In the event of a park emergency where evacuation or emergency response is necessary construction activities could interfere with an emergency response plan or emergency evacuation plan the District has prepared an evacuation plan and wildfire response plan.
- h) While the project site is within a forested area which is subject to dry and warm to hot conditions from late spring through autumn, no heavy equipment that could become an ignition source will be in close proximity to flammable vegetation. Friction between metal parts and/or rocks could generate sparks, resulting in a fire. Integration of **Standard Project Requirement Hazmat-2: Wildfire Avoidance** (See Chapter 2) would reduce the potential for adverse impacts from wildfire to a less than significant level.

IX. HYDROLOGY AND WATER QUALITY.

ENVIRONMENTAL SETTING

Climate and Precipitation

Cool, wet winters and warm, dry summers characterize the climate of north central coastal California. Average annual rainfall in Armstrong Redwoods State Natural Reserve (ARSNR) is 55 inches with measurable amounts occurring on an average of 73 days each year. Although rainfall is rare during the summer months, coastal fog from the Pacific Ocean often spreads inland following the course of Russian River, which is approximately 2.5 miles south of the ARSNR. Condensation produces “fog drip”, which sustains the region’s coastal vegetation (Stewards of the Coast and Redwoods 2014a; Wikipedia 2014).

Watershed – Surface Water

All of the project area occurs within the Fife Creek watershed, which consists of a basin approximately 6.7 square miles in size. Originating at an elevation of approximately 1,940 feet on the south slope of McCray Mountain on private property adjacent to Austin Creek State Recreation Area (ACSRA), Fife Creek flows to its confluence with the Russian River through ARSNR into the town of Guerneville (Stewards of the Coast and Redwoods 2014b). A majority of the surface water in the North Coast Hydrologic Region goes to environmental uses because of the wild and scenic designation of most of the region’s rivers (DWR 2003).

During the 1960’s, concrete check dams, rip-rap and stream bank revetments were installed in Fife Creek within ARSNR with the intent of alleviating bank erosion. Sediment build-up behind the check dams reduced and or eliminated summer flows and flattened the channel gradient. In response to bank erosion, sackcrete stream bank revetments were installed to reduce

stream bank erosion, but resulted in increased erosion where stream banks were not reinforced. Because sackcrete revetments eliminate riparian vegetation and in-stream habitat and are subject to sudden failure (among other issues), there is an effort underway to remove approximately 750 linear feet of sackcrete and concrete rubble within the ARSNR portion of Fife Creek and place natural revetments of logs, rock, and live plantings to stabilize the stream banks (Stewards of the Coast and Redwoods 2014b).

Fife Creek dries up annually within the project area, typically between July and November, with sub-surface flow continuing below the creek bed. Surface water returns to the dry portion of the creek typically in late December after an average of 6 inches of rainfall achieves soil saturation and subsequent surface water build-up (pers. comm. O’Neil 2014).



Flooding

Sonoma County extends approximately 50 miles from northwest to southeast along the Pacific Coast and has a width of approximately 40 miles from the coast inland to the crest of the Coast Range. The principal watercourses in Sonoma County are the Petaluma River, Russian River, Sonoma Creek, and their tributaries. Fife Creek, a tributary of the Russian River, runs through Armstrong Redwoods.

In 2008, the Federal Emergency Management Agency conducted a flood insurance study to determine the 100-year flood boundaries for Sonoma County. Characteristic floods of the Russian River basin are normally the flash-flood type and develop within 24 to 48 hours after the beginning of a flood producing storm and typically recede within 3 days after the end of the storm. Tributaries can rise so rapidly that flooding occurs as early as 4 hours after heavy rainfall begins. Flood peaks for the Russian River basin generally occur between December and March. The principal flooding problems are caused by inadequate channel capacity to transport large flows from short duration storms of high intensity. Inadequate bridges and culverts add to the flood problem (FEMA 2008).

Water Quality Regulation

Sonoma County is within the jurisdiction of the North Coast Regional Water Quality Control Board (NCRWQCB), which oversees ten northern California counties. Per the requirements of the Clean Water Act (CWA), and the California Porter-Cologne Act, the NCRWQCB has prepared a Water Quality Control Plan for the watersheds under its jurisdiction. The North Coast Regional Water Quality Control Board Basin Plan (NCRWQCBBP) identifies beneficial uses that exist or have the potential to exist in each water body, establishes water quality objectives for each water body to protect beneficial uses or allow their restoration, and provides an implementation program that achieves water quality objectives. Per the requirements of CWA Section 303(c), the NCRWQCBBP is reviewed every three years and revised as necessary to address problems with the plan, and meet new legislative requirements. While Fife Creek is not included in the list of Beneficial Uses of Waters of the North Coast region, nearby Austin Creek is listed. Beneficial uses for Austin Creek include municipal and domestic water supply, agricultural supply, industrial service supply, groundwater recharge, navigation, contact and non-contact recreation, commercial and sport fishing, warm and cold freshwater habitat, wildlife habitat, rare, threatened or endangered species habitat, and aquatic organisms migration, spawning, reproduction and early development. Potential beneficial uses include industrial process supply, hydropower generation, and aquaculture (NCRWQCB 2011).

Water Quality

Groundwater quality characteristics and specific local impairments vary with regional setting within the North Coast Hydrologic Region (NCHR). In general, seawater intrusion and nitrates in shallow aquifers are problems in the coastal groundwater basins. From 1994 through 2000, 584 public supply water wells were sampled in 32 of the 63 basins and sub-basins in the NCHR. Analyzed samples indicate that 553 (95%) wells met the state primary Maximum Contaminant Levels (MCL) for drinking water. The remaining 5% of sampled wells had constituents that exceeded one or more MCL (radiological, nitrates, inorganic, volatile and semi-volatile organic compounds). A 1965 report indicated groundwater in Lower Russian River Valley is of the calcium magnesium bicarbonate type and is generally of good quality, with total dissolved solids ranging from 120 to 210 mg/L (DWR 2003).

Macroinvertebrate sampling was performed in Fife Creek in June 1999 at three primary locations. A fourth site was tested for dissolved oxygen only. The three primary sites were sampled for dissolved oxygen, temperature, pH, specific conductance, total and fecal coliform, minerals and nutrients. Results are listed below.

Table 6 - Macroinvertebrate Sampling Results

| Station¹ | Time | DO (mg/l) | Temp. °C | SC umhos/cm | pH |
|----------------------------|-------------|------------------|-----------------|--------------------|------------|
| Upper Fife Cr. | 1230 | 10.0 | 15.1 | 285 (252) | 8.1 (8.12) |
| MD-Fife Cr. 2 | 1530 | 5.8 | --- | --- | --- |
| MD-Fife Cr. | 1500 | 7.4 | 16.4 | 185 (161) | 6.8 (6.82) |
| Fife Cr. @ Mill St. | 1140 | 9.4 | 18.0 | 255 (264) | 7.7 (7.70) |

¹Values in parentheses are from Sequoia Analytical Lab

| Parameter | Upper Fife Creek | MD-Fife Cr. | Fife Cr. @ Mill St. |
|--------------------------------------|-------------------------|--------------------|----------------------------|
| Calcium (mg/l) | 24.8 | 15.8 | 15.7 |
| Magnesium (mg/l) | 12.4 | 7.27 | 14.8 |
| Silica (SiO ₂) (mg/l) | 19.3 | 16.3 | 14.9 |
| Sodium (mg/l) | 10.2 | 7.23 | 7.5 |
| Chloride (mg/l) | 4.99 | 4.33 | 5.11 |
| Sulfate (mg/l) | 13.5 | 6.96 | 10.6 |
| TDS (mg/l) | 161 | 106 | 136 |
| Total Alkalinity (mg/l) | 124 | 78 | 114 |
| Bicarbonate Alkalinity (mg/l) | 124 | 78 | 114 |
| TPO ₄ (as Total P) (mg/l) | ND | 0.0512 | 0.0512 |
| Hardness (mg/l) | 113 | 69.3 | 100 |
| Total Coliform (MPN/100 ml) | 33 | 7 | >1600 |
| Fecal Coliform (MPN/100 ml) | 2 | <2 | 140 |

¹ Values in parentheses are from Sequoia Analytical Lab

| | <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|---|---|--|---|-------------------------------------|
| WOULD THE PROJECT: | | | | |
| a) Violate any water quality standards or waste discharge requirements? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Substantially alter the existing drainage pattern of the site or area, including through 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 on- or off-site flooding? | <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 checked="" type="checkbox"/> | <input type="checkbox"/> |
| g) Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or other flood hazard delineation map? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h) Place structures that would impede or redirect flood flows within a 100-year flood hazard area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| i) Expose people or structures to a significant risk of loss, injury, or death from flooding, including flooding resulting from the failure of a levee or dam? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| j) Result in inundation by seiche, tsunami, or mudflow? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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 – j**, described in the environmental checklist above

DISCUSSION

a) Project locations are mostly situated well away from stream courses. A minimal potential for impacts to water quality could result from trail construction activities. Integration of

STANDARD PROJECT REQUIREMENT HYDRO 1 (see Chapter 2) into construction plans would address potential releases of pollutants, including sediments, into Fife Creek. Less than significant impact.

- b) Groundwater would not be affected by this project. No impact.
- c) 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. BMPs for erosion will be integrated into the project design (**STANDARD PROJECT REQUIREMENT HYDRO 1**) and no existing creeks or streams would be altered by this project. Less than significant impact.
- 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. No impact.
- e) This 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) This project would not substantially degrade water quality. BMPs for erosion will be integrated into the project design (**STANDARD PROJECT REQUIREMENT HYDRO 1**). Less than significant impact.
- g) This project involves no structures, and therefore will not place housing in a 100-year flood hazard area. No impact.
- h) This project involves no structures, and therefore will not impede or redirect flood flows within a 100-year flood hazard area. No impact.
- i) This project involves no structures, and therefore will not expose people or structures to a risk of loss, injury or death from flooding. No impact.
- j) The project area is far enough away from the ocean to not be susceptible to inundation by seiche or tsunami. This project is not located in areas susceptible to mudflows. No impact.

X. LAND USE AND PLANNING.

ENVIRONMENTAL SETTING

The combined 6,679 acres that make up Armstrong Redwoods State Natural Reserve (SNR) and Austin Creek State Recreation Area (SRA) are located in the northwest segment of Sonoma County. Sonoma County itself consists of approximately 1,025,000 acres (1,500 square miles). State and federal agencies, including the U.S. Bureau of Land Management (BLM), and DPR, are responsible for managing over 120,000 acres, encompassing approximately 12 percent of the total area within the County (Sonoma County, 2013).

Sonoma County directly administrates land use and planning policies within its boundaries with the exception of State, federal and tribal lands. The County divides itself into nine areas for planning purposes defined as Planning Areas/City Urban Service Areas (USA). Armstrong Redwoods SNR and Austin Creek SRA are located in the Russian River Planning Area. The majority of the planning area is designated for long-term natural open space and resource protection (Sonoma County, 2013).

No Habitat Conservation Plans (HCPs) protecting specific plant and animal species have been adopted for Armstrong Redwoods SNR or Austin Creek SRA.

| | <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|---|---|--|---|-------------------------------------|
| WOULD THE PROJECT: | | | | |
| a) Physically divide an established community? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with the applicable land use plan, policy, or regulation of any agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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 would not divide an established community because none exist within the boundaries of either Armstrong Redwoods SNR or Austin Creek SRA; therefore, there would be no impact.
- b) The proposed Project is consistent with local plans and policies including the County of Sonoma General Plan. Although Armstrong Redwoods SNR and Austin Creek SRA do not currently have General Plans, work to repair, replace or rehabilitate existing facilities or to

protect public health and safety are permitted under PRC § 5002.2(c). All proposed work would occur within the boundaries of the State Parks. No impact.

- c) No Habitat Conservation Plans (HCPs) protecting specific plant and animal species have been adopted for Armstrong Redwoods SNR or Austin Creek SRA. No impact.

XI. MINERAL RESOURCES.

ENVIRONMENTAL SETTING

The California Geological Survey (CGS), formerly the California Division of Mines and Geology (DMG), classifies the regional significance of mineral resources in accordance with the California Surface Mining and Reclamation Act (SMARA) of 1975 and assists the CGS in the designation of lands containing significant aggregate resources. Mineral Resource Zones (MRZs) have been designated to indicate the significance of mineral deposits. (California Geological Society)

Various minerals have been mined in Sonoma County during the past century; mining operations at the current time consist almost exclusively of the extraction and processing of rock, sand and earth products for use in construction and landscaping. From 1995 to 2002, an average of 4.84 million tons of construction aggregate was mined and marketed each year to meet local needs and a share of the North Bay regional needs. Sonoma County has adopted the Aggregate Resources Management (ARM) Plan to set forth the State mandated mineral management policy for the County. During the process of adoption of the plan, the County considered the aggregate resource areas classified as MRZ-2, "areas where adequate information indicates significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence". (Sonoma County GP).

DPR policy does not permit the commercial extraction of mineral resources on DPR property in accordance with the Public Resources Code § 5001.65.

| | <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|--|---|--|---|-------------------------------------|
| 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) The project site is within Armstrong Redwoods State NR and Austin Creek SRA. The project would not change land use activities within the two park units; therefore, would not result in the loss of availability of a known mineral resource or a locally important mineral resource recovery site. As stated in the Environmental Setting above, under PRC § 5001.65, mining within any State Park unit is prohibited. No impact

XII. NOISE.

ENVIRONMENTAL SETTING

Sound is any detectable fluctuation in air pressure and generally is measured on a logarithmic scale in decibels (dB). When unwanted sound (i.e., noise) is measured, an electronic filter is used to de-emphasize extreme high and low frequencies to which human hearing has decreased sensitivity. Resulting noise measurements are expressed in weighting frequencies called A-weighted decibels (dBA). While zero dBA is the low threshold of human hearing, a sustained noise equal or greater than 90 dBA is painful and can cause hearing loss (Table XI-1, Bearden 2000).

Table 7 - Examples of A-Weighted Sound Level Relative Loudness

| Sound | Sound Level (dbA) | Relative Loudness (approximate) | Relative Sound Energy |
|--|-------------------|---------------------------------|-----------------------|
| Jet aircraft, 100 feet | 130 | 128 | 10000000 |
| Rock music with amplifier | 120 | 64 | 1000000 |
| Thunder, snowmobile (operator) | 110 | 32 | 100000 |
| Boiler shop, power mower | 100 | 16 | 10000 |
| Orchestral crescendo at 25 feet, noisy | 90 | 8 | 1000 |
| Busy Street | 80 | 4 | 100 |
| Interior of department store | 70 | 2 | 10 |
| Ordinary conversation, 3 feet away | 60 | 1 | 1 |
| Quiet automobile at low speed | 50 | ½ | 0.1 |
| Average office | 40 | ¼ | 0.01 |
| City residence | 30 | 1/8 | 0.001 |
| Quiet country residence | 20 | 1/16 | 0.0001 |
| Rustle of leaves | 10 | 1/32 | 0.00001 |
| Threshold of hearing | 0 | 1/64 | 0 |

(Sonoma County 2008)

Noise is further described according to how it varies over time and whether the source of noise is moving or stationary. Background noise in a particular location gradually varies over the course of a 24-hour period with the addition and elimination of individual sounds. Several terms are used to describe noise and its effects. The equivalent sound level (L_{eq}) describes the average noise exposure level for a specific location during a specific time period, typically over the course of one hour. The Community Noise Equivalent Level (CNEL) is a twenty-four hour average of L_{eq} with an additional 5 dBA penalty for noise generated between the hours of 7:00 p.m. and 10:00 p.m. and a 10 dBA penalty during the hours of 10:00 p.m. and 7:00 a.m. The penalties account for how much more pronounced a noise is at night when other sounds have diminished. Federal, state, and local governments have defined noise and established

standards to protect people from adverse health effects such as hearing loss and disruption of certain activities. Noise is defined in the California Noise Control Act, Health and Safety Code, California Code of Regulations (CCR) § 46,022 as excessive or undesirable sound made by people, motorized vehicles, boats, aircraft, industrial equipment, construction, and other objects.

To promote compatibility among various land uses and protect health and safety, Sonoma County sets noise standards for projects in certain land use categories and for sensitive receptors such as residential areas, hospitals, schools, libraries, and places of worship. The acceptable noise levels for these areas is up to 60 dBA, tolerable with levels from 61 to 75 dBA, normally unacceptable from 76 to 85, and clearly unacceptable above 85 dBA (Sonoma County 2020).

There are six public use airports throughout Sonoma County (Sonoma County 2008, 2010). Of these, the Charles M. Schulz – Sonoma County Airport is about thirteen air miles east of the proposed project and is the closest airport in the County to the site of the proposed project. No public facilities with sensitive receptors are located in the vicinity of the project sites. The closest public facilities to the project sites, the Guerneville School and the Guerneville Community Church are located two and three miles, respectively, to the south in Guerneville (Google Maps 2012).

Armstrong Redwoods SNR is comprised of approximately 805 acres in the rural interior of Sonoma County (DPR 2012). The park unit is known for its stand of towering coast redwoods, the largest virgin stand of redwoods in Sonoma County. Though largely quiet, the occasion sounds heard in the project area include bird song, wind through the trees, and the chatter of chipmunks. Throughout the year, out-of-town visitors and local residents are likely to be heard within the park unit, particularly at the Visitor Center, along the numerous park trails and in the day use areas.

Austin Creek State Recreation Area, located adjacent to and at higher elevation than ARSNR. ACSRA is better known for its sweeping views at higher elevation and wide expanses of land between ridges. Although other hikers/campers/visitors can be heard sporadically, the expanse of the park contributes to its quiet. Similar to ARSNR, sounds from area roadways can be heard at the higher elevations.

The Visitor Center and park ranger station/unit office are located along Armstrong Woods Road. There are three homes for housing DPR personnel and their families; two are situated near the Visitor Center/park unit office area and the third is located approximately 600 feet of the picnic area (Citlau 2012). Three residences are located in ACSRA two are located in and near the Pond Farm complex and the third is located northeast of the Bullfrog Pond Campground. The closest private residence is situated along Armstrong Woods Road approximately one mile south of the proposed project (Citlau 2012, Google Maps 2012).

| | | | |
|---|--|---|----------------------|
| <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|---|--|---|----------------------|

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?

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| b) Generate or expose people to excessive groundborne vibrations or groundborne 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 **XI a – f**, described in the environmental checklist above.

DISCUSSION

- a) Trucks and heavy equipment such as a backhoe and compactor would operate during project implementation. Project-related noise levels in and adjacent to mechanical work would fluctuate, depending on the type and number of vehicles and equipment in use at any given time. However, these noise levels would not violate any specific management plans. No impact.
- b) Project-related activities would not involve the use of explosives, pile driving, or other intensive construction techniques that could generate significant ground vibration or noise. Minor vibration adjacent to mechanized trail equipment during construction work would be generated only on a short term basis. Therefore, ground-borne vibrations and noises would have a less than significant impact.
- c) The proposed project maintains and improves existing trails within park boundaries. While noise levels from mechanical trail equipment would increase during project implementation, there would be no substantial permanent increase in the ambient noise levels. No impact.
- d) While use of mechanized trail equipment on the proposed trail improvement project could temporarily increase noises above ambient levels, integration of **STANDARD PROJECT REQUIREMENT NOISE-1, NOISE EXPOSURE** (See Chapter 2) would reduce any potential impacts to a less than significant level. Once the trail improvement project is complete, project-related noises would cease. Less than significant.
- e) The project is not located within an airport land use plan or within two miles of a public or public use airport. No impact.
- f) The project is not located within two miles of any privately owned airstrip. No impact.

XIII. POPULATION AND HOUSING.

ENVIRONMENTAL SETTING

Armstrong Redwoods State Natural Reserve (SNR) and Austin Creek State Recreation Area (SRA) are located in Sonoma County which, as of 2013, had a population of 495,025. Between 2010 and 2013, the County's population grew at a rate of 2.3% (Census Bureau, 2014). The County is divided into nine planning areas and Armstrong Redwoods SNR and Austin Creek SRA are located in the Russian River Planning Area (Planning Area 4), one of the more sparsely populated of the County's planning regions. In 2000, the 16,400 residents of this region lived primarily in Forestville, Mirabel and Guerneville; outside these small communities, the population is limited.

The community of Guerneville is located just outside the southern boundary of Armstrong Redwoods SNR. Properties adjacent to both parks consist of ranchlands and open space. Housing within the park boundaries consists of four park employee residences in Armstrong Redwoods SNR and two employee residences in Austin Creek SRA. The development of additional permanent housing is not proposed as part of this project.

| | <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|---|---|--|---|-------------------------------------|
| 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 – h**, described in the environmental checklist above

DISCUSSION

- a) The project proposes the realignment of existing trails with no appreciable increase in trail length. It does not propose any elements that would induce population growth in the area. No impacts.
- b) No housing would be moved or removed for the project. No impact.
- c) No persons would be displaced either temporarily or permanently. No impact.

XIV. PUBLIC SERVICES.

ENVIRONMENTAL SETTING

Public services include fire and police protection, schools, parks, and other public facilities. Armstrong Redwoods State Natural Reserve (SNR) and Austin Creek State Recreation Area (SRA) are located approximately three miles north of the town of Guerneville, thirty miles west of Santa Rosa, and 78 miles northwest of San Francisco (Google Maps 2012). The East Ridge and Pool Ridge Trails Improvements Project site extends from a location adjacent to the entrance parking lot restroom, to the parks' existing 50,000 gallon water tank. The overall project site benefits from existing public services, such as fire and law enforcement protection.

Fire Protection

The California Department of Fire and Forestry Protection (CalFire) has primary jurisdiction for fire suppression in State Responsibility Areas (SRA), including units of the State Park System (CalFire 2012). The Sonoma-Lake-Napa Unit of CalFire is responsible for fire protection in Armstrong Redwoods SNR and the nearest CalFire Air Attack Base is located in the northeast corner of the Sonoma County Airport, north of Santa Rosa, approximately eighteen miles from Armstrong Redwoods SP (Google Maps 2012). Additionally, CalFire conducts facility inspections and permits modifications, change-of-use facilities, and other facility related projects. While CalFire has legal jurisdiction and, in the case of an event, has command authority, the local fire department, Russian River Fire Protection District handles local responsibilities such as HazMat inspection/enforcement and emergency event response, through delegated authority from CalFire (Citlau 2012). The Russian River Fire Protection District (RRFPD) is staffed by both full-time permanent employees as well as volunteers and is based out of a single station located in Guerneville, approximately two miles south of the entrance to Armstrong Redwoods SNR at 14100 Armstrong Woods Road (Google Maps 2012).

Police Protection

DPR rangers assigned to Armstrong Redwoods SNR and Austin Creek SRA are Peace Officer Standards and Training (POST) certified law enforcement officers and provide year round law enforcement within park unit boundaries. The Sonoma County Sheriff's Department provides supplemental law enforcement from their substation in Guerneville, about three miles south of the start of the proposed Armstrong Redwoods SNR and Austin Creek SRA East Ridge and Pool Ridge Trail Improvements Project APE. Officers from this substation cover a 557 square mile area that includes all unincorporated areas surrounding Guerneville as well as the Sonoma Coast (Sonoma County Sheriff's Dept., 2012, Google Maps 2012). The Sonoma County Sheriff would assist DPR with any emergency and law enforcement issues within the boundaries of Armstrong Redwoods SP and Austin Creek SRA. The California Highway Patrol (CHP) serves as the primary law enforcement presence on interstates, state routes, and county roads. The CHP staffs a station in the town of Rohnert Park, approximately twenty-seven miles east of Guerneville and approximately thirty miles east of the sites of the proposed project (CHP 2012, Google Maps 2012). The CHP would provide assistance along public roadways in the vicinity of the park unit.

Schools

The closest school, Guerneville School (K-8), is located approximately two miles south of the project sites in the town of Guerneville (Google Maps 2012, Sonoma County Office of Education 2012). No schools exist within the project site.

Parks and Other Public Facilities

Many parks and recreational facilities that serve local residents and visitors are located throughout Sonoma County. The Russian River Recreation & Park District oversees smaller recreations facilities such as playgrounds and beach areas in the town of Guerneville. The Highlands Resort is a private overnight facility located in Guerneville a little over two miles south of the entrance to Armstrong Redwoods SNR. The closest large hospital to the park is Kaiser Permanente Medical Center, approximately 21 miles southeast of the project site, in Santa Rosa, CA.

| | <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|--|---|--|---|-------------------------------------|
| WOULD THE PROJECT: | | | | |
| a) Result in significant environmental impacts from construction associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 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) **Fire Protection:** No components of the proposed Armstrong Redwoods and Austin Creek East Ridge and Pool Ridge Trail Improvement Project would contribute to an increase of visitation and the level of required public services is expected to remain relatively static; however, use of construction equipment in the vicinity of flammable vegetation at the project sites could present an increased risk of fire that could result in additional demands on CalFire and/or local fire response teams. Any impact on services would be temporary and nothing in the project scope would contribute to the need for an increase in the level of fire protection after construction is complete. Integration of Standard **Project Requirement Hazmat-2, Wildfire Avoidance** (See Chapter 2) would reduce the potential impact to fire protection services to a less than significant level.

Police Protection: As noted in the Environmental Setting, DPR rangers with law enforcement authority patrol Armstrong Redwoods SNR and Austin Creek SRA with emphasis on campgrounds and public use areas. 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.

Parks and Other Public Facilities: There would be no impacts to schools, other parks, or other public facilities, as a result of the proposed project. The project will reroute, improve, and decommission section of already existing recreational hiking trails within both Armstrong Redwoods SNR and Austin Creek SRA. No impact.

XV. RECREATION.

ENVIRONMENTAL SETTING

Sonoma County Parks include more than 150 miles of trails leading to beaches, mountains, forests, meadows and lakes. From Petaluma to The Sea Ranch and Sonoma to Bodega Bay: hike, camp, host a picnic, ride a bike, paddle a kayak, or take in the view

Armstrong Redwoods SNR, located approximately one mile north of Guerneville, is one of the last old growth coastal redwood groves in this Sonoma County.

The Reserve includes a visitor center, outdoor amphitheater, self-guided nature trails, and a variety of picnic facilities. The picnic area is 3/4 of a mile from the park entrance; grills, tables and restrooms are situated beneath the tall trees while seasonal creeks meander throughout the park during the winter months. All trails are closed to equestrian use through the winter season. However, when conditions permit, the trails are opened, usually during the peak season in summer.

Although no camping is available in the redwood grove, there is a campground at Austin Creek State Recreation Area, which is adjacent to the park. Austin Creek is

accessed through the same entrance as Armstrong Redwoods and its rolling hills, open grasslands, conifers, and oaks are a contrast to the dense canopy of the redwood grove.

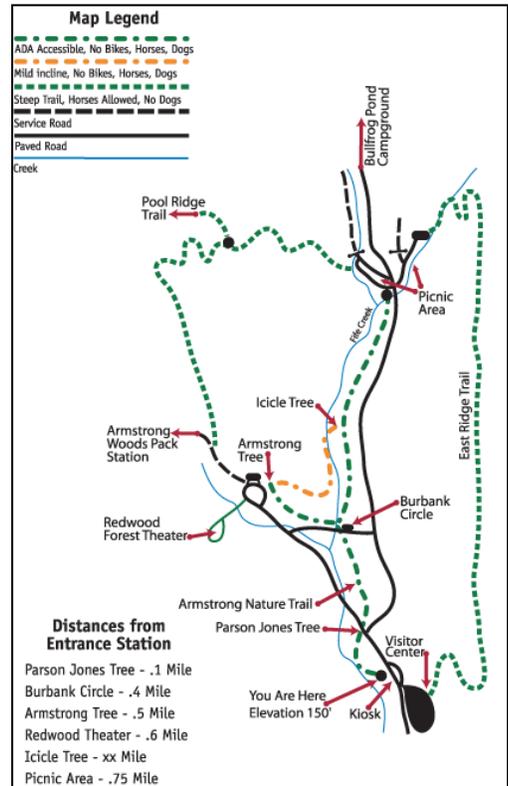


Figure 5 - Park Trails

WOULD THE PROJECT:

- | | <u>POTENTIALLY
SIGNIFICANT
IMPACT</u> | <u>LESS THAN
SIGNIFICANT
WITH
MITIGATION</u> | <u>LESS THAN
SIGNIFICANT
IMPACT</u> | <u>NO
IMPACT</u> |
|---|---|--|---|-------------------------------------|
| a) Increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CRITERIA FOR DETERMINING SIGNIFICANCE

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

DISCUSSION

- a) The proposed trail improvement project would maintain, upgrade trail alignments and trail re-routes, eliminate excessively steep grades and reduce erosion. Although segments of existing trails would close, as needed, during implementation, visitors would have the option of using alternate trails and/or areas to pursue their recreation needs. Some visitors could choose to avoid the trail system project implementation and use nearby parks; however, this use is not expected to significantly impact other facilities. Less than significant impact.
- b) No part of this project requires the construction or expansion of recreational facilities. No impact.

XVI. TRANSPORTATION/TRAFFIC.

ENVIRONMENTAL SETTING

The proposed project is located solely within Armstrong Redwoods State Natural Reserve (SNR) and Austin Creek State Recreation Area (SRA), in the Guerneville area of Sonoma County. This region does not have an extensive highway network due to its remote location in the county and relatively low population density. The major roads and highways in the vicinity of the site are State Highway 116 and River Road. River Road connects the community of Windsor on State Highway 101 and Guerneville. State Highway 116 connects the town of Petaluma with the community of Jenner on the Sonoma Coast, and passes through Guerneville (Google, 2013).

Access to Armstrong Redwoods SNR and Austin Creek SRA is provided by Armstrong Redwoods Road, a county-maintained road. Armstrong Redwoods Road passes through ARSNR to provide the only public access to Austin Creek SRA; this road also provides access to several private residences and undeveloped privately-owned parcels within and beyond the parks' boundaries. There are numerous private roads providing access from Austin Creek SRA to areas north of the park however, all roads are unimproved and gated by private land owners.

| | <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|---|---|--|---|-------------------------------------|
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" 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) Result in inadequate parking capacity? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Conflict with adopted policies, plans, or programs | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

CRITERIA FOR DETERMINING SIGNIFICANCE

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

DISCUSSION

- a - d) The proposed project does not include changes to the established roads that provide access to or within Armstrong Redwoods SNR and Austin Creek SRA. No Impact.
- e) The proposed project will not result in inadequate emergency access. No Impact
- f) The proposed project will not result in inadequate parking capacity. No Impact.
- g) As proposed the project does not conflict with the adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. No Impact

XVII. UTILITIES AND SERVICE SYSTEMS.

ENVIRONMENTAL SETTING

Armstrong Redwoods State Natural Reserve (SNR) and Austin Creek State Recreation Area (SRA) are located in Sonoma County, approximately 3 miles north of Guerneville on Armstrong Woods Road. Like many parks in the State Parks system, Armstrong Redwoods SNR and Austin Creek SRA employ a combination of self-provided utilities and services provided by local municipalities.

Wastewater from both Armstrong Redwoods SNR and Austin Creek SRA is treated at an existing DPR-owned and operated sewage treatment system (leachfields) and one sewer lift station located within the boundaries of Armstrong Redwoods SNR.

DPR owns and operates its own water system within Armstrong Redwoods SNR to serve operational needs within the park. In Austin Creek SRA, Pond Farm is served by a domestic water supply for the two residences in the vicinity and the campground at Frog Pond is served by a well.

Solid waste produced at the parks by park staff and visitors, is collected by the Sonoma County Waste Management Agency and transported to the Guerneville Transfer Station. (DPR 2013)

| | <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|---|---|--|---|-------------------------------------|
| WOULD THE PROJECT: | | | | |
| a) Exceed wastewater treatment restrictions or standards of the applicable Regional Water Quality Control Board? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Would the construction of these facilities 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"/> |
| Would the construction of these facilities cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) 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"/> |
| e) 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"/> |

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| f) 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"/> |
| g) Comply with federal, state, and local statutes and regulations as they relate to solid waste? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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 – g**, described in the environmental checklist above.

DISCUSSION

a - g) The proposed project does not propose the construction of new water, wastewater treatment or storm drainage systems; nor will the project result in increased usage of existing systems. No impact.

Chapter 4 - Mandatory Findings of Significance

| | <u>POTENTIALLY SIGNIFICANT IMPACT</u> | <u>LESS THAN SIGNIFICANT WITH MITIGATION</u> | <u>LESS THAN SIGNIFICANT IMPACT</u> | <u>NO IMPACT</u> |
|---|---|--|---|--------------------------|
| WOULD THE PROJECT: | | | | |
| a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal? | <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 probably future projects?) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Have environmental effects that will 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) Department of Parks and Recreation Environmental Specialists evaluated the proposed trail improvement project and its impacts on the environment, fish and wildlife, plants, animals and plant communities, and rare or endangered plants and animals. While the project has the potential to degrade the environment in the short-term, the purpose and goal of the project is to improve segments of the existing degraded trail system and restore natural drainage patterns. Project activities have been designed to avoid potentially significant impacts to the physical or biotic environment. Standard and Specific Project Requirements have been developed to further avoid or ensure that potential impacts remain less than significant. Full integration of project requirements eliminate or reduce impacts to a less-than significant level.
- b) Department of Parks and Recreation Cultural Specialists evaluated the proposed project for its potential impacts on historical, cultural, and archaeological impacts. As a result of the evaluations of the proposed project site, Standard Project Requirements addressing inadvertent finds have been incorporated into the project design. Implementation and fulfillment of these project requirements would render project impacts on cultural resources less than significant.
- c) DPR often has smaller maintenance programs and rehabilitation projects planned for a park unit. A fence installation project and building stabilization project at the Pond Farm in

ACSRA as well as a few special events confined to specific areas are scheduled within the next few months. Additionally, a waterline replacement project has been proposed for ARSNR although that project has been postponed until a general plan is prepared for the units. 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) Most project activities would have no potentially significant effects on humans. However, environmental impacts on air quality (e.g., heavy equipment emissions), ambient noise levels (e.g., heavy equipment operation), could have substantially adverse effects on humans. While this project could have substantially adverse, direct or indirect effects on humans, implementation of this project according to designed safety standards, engineering specifications, park closure and warning notices and other prescribed safety precautions, project monitoring, and measures outlined in Standard and Specific Project Requirements would ensure potential impacts from emissions remain at a less than-significant level.

Chapter 5 - Summary Mitigation measures

Per CEQA Guidelines Section 15070, this project qualifies as a Negative Declaration; therefore, no mitigations were applied to project actions.

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APPENDIX A

MAPS, TABLES, AND CHARTS

APPENDIX B

PROJECT DESIGN GRAPHICS

APPENDIX C
SENSITIVE SPECIES LIST

APPENDIX D
ACRONYMS
