



Redwood Maintenance Facility Water Supply Installation

Environmental Assessment

PMIS Number: 59882

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ENVIRONMENTAL ASSESSMENT
Redwood Maintenance Facility Water Supply Installation
Redwood National and State Parks, California

Prepared For:
National Park Service
U.S. Department of the Interior



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Environmental Assessment

**Redwood National and
State Parks**

ABSTRACT

The National Park Service (NPS) propose to install a water supply to support the potable water needs and fire control at the Aubell property. The water supply would consist of a water well, water tank and waterline for the new maintenance facility of Redwood National and State Parks (the parks) at the Aubell area, which is located near Crescent City on California Department of Parks and Recreation (CDPR) owned land. The CDPR will prepare a separate California Environmental Quality Act Compliance document for this water supply. This project has been analyzed pursuant to the requirements of the National Environmental Policy Act. The actions identified herein would be implemented consistent with the parks' *General Management Plan/General Plan*.

This environmental document analyzes the environmental impacts that would occur as a result of project implementation. The document identifies and analyzes two alternatives: the Alternative 1: No Action and the Alternative 2: On-Site Water (Proposed Action). Under the No Action Alternative, water for the new facility would be obtained from the municipal water supply via a pipeline across adjacent lands. Under the Proposed Action Alternative, the agencies propose to install a water well, water tank, and waterline to provide water for potable water uses and fire flow for the new maintenance facility.

Written comments regarding this document must be submitted in writing by [July 27, 2007] and should be directed to:

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The document will be available at http://www.nps.gov/redw/current_ppm.htm. For additional information, please call 707/464-6101

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Table of Contents

1 Purpose and Need	3
Introduction	3
Background.....	3
Relationship to Other Plans	5
Public Involvement.....	6
Consultation with Other Agencies	7
Impact Topics Selected for Detailed Analysis	8
Impact Topics Dismissed from Detailed Analysis.....	9
2 Alternatives	13
Alternative 1: No Action	13
Alternative 2: On-Site Water (Proposed Action).....	13
Environmentally Preferred Alternative.....	18
Considered but Dismissed	19
Comparison of Alternatives	20
Mitigation Measures and Best Management Practices	21
3 Affected Environment.....	25
Introduction	25
Geology, Geologic Hazards, and Soils	25
Hydrology, Floodplains, and Water Quality	26
Wetlands.....	27
Vegetation.....	27
Wildlife	28
Special-status Species.....	29
Air Quality	31
Natural Soundscapes.....	32
Cultural Resources	33
Scenic Resources	35
Park Operations and Facilities	37
4 Environmental Consequences.....	39
Introduction	39
Methodology	39
Analysis of Environmental Consequences.....	41
Geology, Geologic Hazards, and Soils	41
Hydrology, Floodplains, and Water Quality.....	43
Wetlands.....	47
Vegetation.....	49
Wildlife	51
Special-status Species.....	53
Air Quality	57
Natural Soundscapes.....	60
Cultural Resources	62
Scenic Resources	67
Park Operations and Facilities	69
5 Coordination and Consultation	73

List of Agencies, Organizations, Interested Parties, and Businesses that Received this Document	74
List of Preparers, Consultants, and Planning Team Members	76
6 References.....	77
Appendix A.....	81
List of Figures	
FIGURE 1: PROJECT LOCATION.....	4
FIGURE 2: AUBELL SITE.....	12
FIGURE 3: ALTERNATIVE 2: ON-SITE WATER (PROPOSED ACTION) - ALTERNATIVE 2 - AUBELL AREA.....	14
FIGURE 5: PROPOSED WATERLINE LOCATION	16
FIGURE 6: PROPOSED TANK LOCATION	17
FIGURE 7: AUBELL LANE	36
FIGURE 8: SMALL BARN IN THE AUBELL AREA	37
List of Tables	
Table 1: Summary of Impact Topics.....	20
Table 2: Special Status Species	30

1 Purpose and Need

Introduction

The National Park Service (NPS) proposes to install a water well, water tank, and waterline (water supply) at the new maintenance facility for Redwood National and State Parks (the parks) at Aubell. The water supply would provide water for potable water uses and fire flow for the new maintenance facility. This project has been analyzed pursuant to the requirements of the National Environmental Policy Act (NEPA). The California Department of Parks and Recreation (CDPR) will prepare a separate California Environmental Quality Act (CEQA) Compliance document for this water supply.

Background

The 2004 Redwood Maintenance Facility Relocation Environmental Assessment and Initial Study/Mitigated Negative Declaration (RMFR EA/IS/MND) described a proposal to construct a new joint maintenance facility off Aubell Lane in the northern area of Redwood National and State Parks (RNSP) to serve NPS and California Department of Parks and Recreation (CDPR) maintenance functions (see Figure 1). The new facility is needed to combine the maintenance operations of state and national parks into a single facility located closer to reliable transportation and supply networks for increased efficiency and long-term cost effectiveness. In addition, the upkeep costs for the exiting NPS maintenance area increasing because of the age of the facilities and the location in a geologically unstable area. The Aubell area is currently utilized for CDPR operations and NPS ranger functions.

The RMFR EA/IS/MND Findings of No Significant Impact (FONSI) December 23, 2005, stated that there would be a change in the water source identified in the RMFR EA/IS/MND. The water supply was originally to come from connecting to the Bertsch-Ocean View Community Services District (BOVCSD) water supply via a 10-inch water pipe installed along Elk Valley Road. The FONSI stated that the water would instead be obtained from the City of Crescent City or the BOVCSD via a pipeline across the Elk Valley Rancheria's property adjacent to the Aubell Property on the East. The landowner put an indefinite hold on negotiations to cross the Rancheria's property with the waterline, which would not allow the project to move forward.

Aubell's current onsite water supply consists of an infiltration gallery at a fresh water spring. A 1 ½-inch line delivers the spring water to a slow sand filter, chlorinator, and to a 1,200 gallon redwood water storage tank. The existing water supply supports the on-site CDRP ranger station and does not have the capacity to support the new maintenance facility. The installation of the new water supply would provide water for potable water uses and fire flow for the new maintenance facility located at Aubell.



BASE MAP:
 Redwood National and State Parks,
 Official Map and Guide

Approximate Scale: 1" = 2 miles

SLC7Q052.ppt

<p>Date: 02/12/2007</p>	<p>Redwood Maintenance Facility Water System Installation Environmental Assessment Redwood National and State Parks, California</p> <p style="text-align: right;">Project Location</p>	<p>FIGURE 1</p>
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Purpose of and Need for the Action

The purpose of the project is to:

- Provide sufficient water on site for potable water uses for the Redwood Maintenance Facility
- Provide adequate on-site water to provide for fire protection

The action is needed because the existing on-site water supply at Aubell is not sufficient to support the operations of the maintenance facility. The water source identified in the FONSI is not available at this time. The landowner put an indefinite hold on negotiations to cross the Rancheria property with the waterline, which would not allow the project to move forward.

Relationship to Other Plans

The Redwood National and State Parks *Final General Management Plan / General Plan, Environmental Impact Statement / Environmental Impact Report* and its *Record of Decision and Notice of Determination* are the guiding documents for this environmental assessment and initial study/mitigated negative declaration. The proposed project is consistent with guidance set forth in these documents. The project actions were identified in the *General Management Plan / General Plan*.

The RMFR EA/IS/MND project was a joint effort by NPS and CDP, authorized under the Cooperative Management Agreement between NPS and CDP for Cooperative Management of the Redwood National and State Parks (2002). Redwood National and State Parks *Final General Management Plan / General Plan, Environmental Impact Statement / Environmental Impact Report* and its *Record of Decision and Notice of Determination* (NPS 1999) indicates that NPS and CDP maintenance facilities would be consolidated wherever it would be cost-effective to do so. The new facility would be planned and designed to meet both NPS and CDP operational requirements and would have safe, dependable access to area highways and convenient access to park facilities. The Aubell area was identified in the *General Management Plan / General Plan* as an administration site, which allows for maintenance facilities.

The *General Management Plan / General Plan* is the overall planning document for the parks. The purpose of a general management plan is to provide NPS with “clearly defined direction for resource preservation and visitor use” (NPS 1998) and provide general directions and policies to guide planning and management in the park. Compliance history, including cultural/archeological compliance and Native American consultation occurred extensively during the RMFR EA/IS/MND.

This project would support the RMFR project and construction would occur concurrently with the RMFR project. Compliance history and cultural/archeological and Native American consultation performed, as part of the RMFR project is applicable to this water supply installation project and all agreements made for the RMFR project apply to this water supply project. The

RMFR EA/IS/MND completion date was December 1, 2004 and the related was dated December 23, 2005.

Public Involvement

An extensive public involvement effort was carried out during the planning process for the *General Management Plan / General Plan*. The public outreach effort included a discussion of the need to relocate NPS maintenance operations from the Requa area. The *General Management Plan / General Plan* also showed Aubell as a park administrative site, although the Aubell area was not specifically identified as the primary maintenance area for the parks.

The NPS conducted scoping for the original RMFR project at a public meeting in May 2003. The NPS and CDPR invited comments on the environmental assessment/initial study/mitigated negative declaration (EA/IS/MND) through a series of public meetings, media releases, and direct mailings between December 2004 and February 2005. Fifty-eight copies of the EA/IS/MND were distributed to elected officials; federal, state and local agencies; federally recognized American Indian tribes; organizations; local businesses; residents of the Aubell and Elk Valley Road area; Requa residents who obtain water from the NPS water supply; the general public; and local libraries.

Based on public comments from residents of the Aubell and Elk Valley Road neighborhood, the proposed location of the facility was changed so that it would be less visible from Elk Valley Road. Due to the change in the proposed project, CDPR recirculated the Redwood Maintenance Facility Relocation Revised Draft Initial Study/Mitigated Negative Declaration (revised IS/MND) in June and July 2005 pursuant to CEQA requirements. Sixty-eight copies of the revised IS/MND were distributed to the recipients of the original EA/IS/MND as well as to additional elected officials and persons who had commented on the original document or who had attended the public meetings. Copies of the document were again made available at local libraries in Crescent City, Arcata, and Eureka; at park offices in Crescent City and Eureka; and on the Internet. The CDPR published a legal notice in the *Daily Triplicate* on Saturday, June 25 advising that the revised IS/MND was available for review. The *Daily Triplicate* published a front-page article on Saturday, July 9 describing the project and announcing the public meeting scheduled for July 11, 2005. A second article appeared on the *Daily Triplicate* website describing the meeting, which was attended by eleven people. Six written comments were received on the revised IS/MND, one of which was submitted at the meeting.

Scoping for the current water supply project was conducted through direct mailings to regulatory agencies, local elected officials and organizations, individuals who commented on the original EA/IS/MND or the revised IS/MND, and local residents including residents of the Aubell and Elk Valley Road neighborhood. Thirty-seven letters were sent in February 2007. Three responses to the scoping letter were received; none of the respondents expressed concerns about the current proposal for supplying water to the facility.

Comments from local residents regarding the proposed facility expressed concerns about the general location of the facility. None of the comments from local residents raised any concerns about the water supply for the facility. Concerns raised by local agencies for the proposed water supply have been discussed through regular meetings, phone calls, or letters. The NPS and CDPR have met regularly or discussed the proposed water supply project with local water supply agencies including the City of Crescent City, Del Norte County, the Bertsch-Ocean View Community Services District, and with the Elk Valley Rancheria. The current proposal for on-site water supply is the result of these discussions.

The original EA/IS/MND described the proposed disposition of the existing national park maintenance facility at Requa located about 20 miles south of the new facility, in addition to describing proposals for the new facility at Aubell. Residents and businesses in the Requa area were not included in the scoping for the current water supply proposal unless they commented on the original proposal because the water supply project at Aubell would not affect any of these residents or businesses.

Pursuant to CEQA, the CDPR will recirculate a revised IS/MND describing the current proposal for supplying water to the Aubell facility. The recirculated revised IS/MND will be sent to all recipients of the original EA/IS/MND, including residents and businesses in the Requa area who are not affected by proposals for supplying water to the Aubell facility.

Consultation with Other Agencies

Threatened or Endangered Species Consultation

On March 3, 2007 Gregory Holm, Wildlife Biologist, Redwood National Park sent a memorandum addressing threatened or endangered species at Aubell. The memorandum stated “Due to the fact that construction schedules will be adjusted to avoid the marbled murrelet breeding season, and the project area does not currently contain spotted owls, I have determined that here will be no effect to either species. Because of this determination, no consultation with the U.S. Fish and Wildlife Service under section 7 of the Endangered Species Act is necessary”. According to Mr. Holm, this project is not likely to adversely affect any federally listed proposed threatened or endangered species or their critical habitat.

The Biological Opinion 151422SWR2003AR8948:BAD, dated October 27, 2005, documented the National Marine Fisheries Service determination that the activities in the RMFR EA/IS/MND are not likely to jeopardize the continued existence of threatened SONCC coho salmon or result in the destruction or adverse modification of SONCC coho salmon critical habitat. The effects on coho salmon were adequately addressed under the Biological Opinion for the construction of the facility in the RMFR EA/IS/MND. The selected action at Aubell would not affect any other federally or state listed, proposed or candidate, rare, threatened or endangered plants or animals. Therefore, the waterline project does not need further consultation.

Section 106 Consultation

On February 5, 2007 the National Park Service sent a letter to the California State Historic Preservation Officer (SHPO). The National Park Service invited participation in the Waterline and Water Tank Construction EA planning process. A response letter dated April 20, 2007 was received stating that “A cultural resources survey was conducted of the undertaking area of potential effect. In addition to an archeological reconnaissance survey, consultation with Smith River Rancheria and Elk Valley Rancheria occurred. The only cultural resource identified was a logging road with multiple skid trails. You have concluded that this cultural resource is not eligible for the National Register of Historic Places since it most likely dates from the 1950s and has lost its integrity. I concur with determination. No other historic properties are within the undertakings area of potential effect. Thus, I concur with your no historic properties affected determination”.

The NPS sent letters in February 2007 soliciting information on the proposed project from three local American Indian groups with ancestral ties to the area. The Elk Valley Rancheria whose lands are adjacent to the project area has been regularly informed regarding the project.

Impact Topics Selected for Detailed Analysis

A short rationale for each impact topic analyzed in this document is provided below. A description of the existing conditions for each selected topic is provided in Chapter 3, Affected Environment. The potential impacts of each alternative within each topic area are presented in Chapter 4, Environmental Consequences.

Natural Resources

NPS and CDPR management policies and natural resource management guidelines require the consideration of natural resources in planning proposals. It is necessary to characterize the natural resources and the environmental consequences to these resources that could result from the Alternative 1: No Action and the Alternative 2: On-Site Water (Proposed Action).

The following impact topics were analyzed:

- Geology, geologic hazards, and soils
- Hydrology, floodplains, and water quality
- Wetlands
- Vegetation
- Wildlife
- Special-status species
- Air quality
- Natural soundscapes

Cultural Resources

NPS and CDPR management policies and cultural resource management guidelines call for the consideration of cultural resources during the planning of proposed actions and preparation of environmental compliance documentation. Cultural resources could be affected by implementation of the Alternative 2: On-Site Water (Proposed Action).

Cultural resource topics include:

- Archeological resources
- Historic resources
- Ethnographic resources

Other Resource Topics

This EA examines the effects of the proposed water supply on the scenic resources and park operations and facilities at the project location and surrounding areas. Analysis of park operations and facilities is important to ensure the quality and effectiveness of the infrastructure, and the agencies' ability to maintain the infrastructure used in the operation of the parks to adequately protect and preserve vital resources.

Analysis of the Alternative 1: No Action and the Alternative 2: On-Site Water (Proposed Action) was performed for the following resource topics:

- Scenic resources
- Park operations and facilities

Impact Topics Dismissed from Detailed Analysis

Environmental Justice

According to the Environmental Protection Agency, environmental justice is the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

Presidential Executive Order 12898, "General Actions to Address Environmental Justice in Minority Populations and Low-income Populations," requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing the disproportionately high and/or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. This project would not have health or environmental effects on minorities or low-income populations or

communities as defined in the Environmental Protection Agency's Environmental Justice Guidance (July 1996). Therefore, environmental justice was dismissed as an impact topic.

Land Use

The installation of the well head, water line, and water tank would not require a land use permit.

Museum Collections

Implementation of elements of the Alternative 2: On-Site Water (Proposed Action) could result in minimal additions to museum collections, if archeological data recovery is performed as mitigation for direct site impacts. Although such additions would require museum storage space and ongoing collections maintenance and management, the discovery of new artifacts would be uncertain and likely of limited number. Implementation of the Alternative 2: On-Site Water (Proposed Action) would not have a perceptible impact on museum collections.

Prime and Unique Agricultural Lands

The Aubell area is not considered Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The Elk Valley Road is zoned agricultural; however, it is not currently in agricultural use and is part of Redwood National and State Parks (Figure 2). The project would not convert existing farmland to non-agricultural use. Therefore, the Alternative 2: On-Site Water (Proposed Action) would not affect prime and unique agricultural lands.

Public Health and Safety

Public health and safety is not presented as a separate topic in this analysis because other sections (geology, geologic hazards, and soils and hydrology, floodplains, and water quality) evaluate park-related public health and safety issues.

Transportation

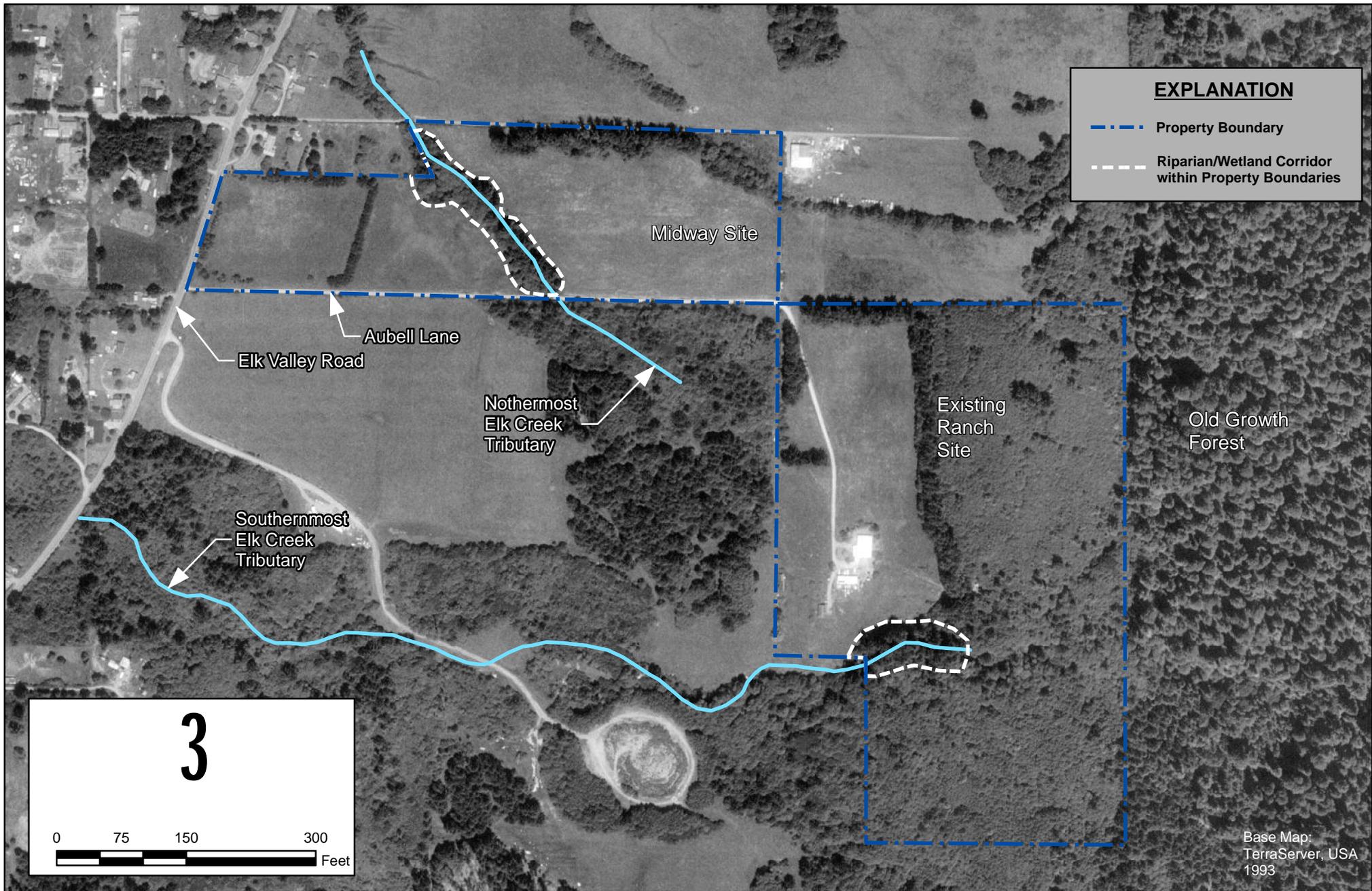
Installation of the well head, water line, and water tank would not affect transportation in the area. The RMFA addresses transportation concerns due to construction of the Redwood maintenance facility. The water supply would be installed at the same time as the construction of the Redwood maintenance facility.

Visitor Experience

Visitor experience is not presented as a separate topic in this analysis because the Redwood maintenance facility at Aubell purpose is to support park maintenance operations and is not a visitor destination.

Wilderness Experience

There is no designated wilderness within the project area. Implementation of elements of the Alternative 2: On-Site Water (Proposed Action) would not have a direct or indirect effect on the parks' wilderness areas.



Date: 03/07/2007

Redwood Maintenance Facility Water System Installation
 Environmental Assessment
 Redwood National and State Parks, California

Aubell Site

SLC7A031.mxd

FIGURE

2

2 Alternatives

This EA presents two alternatives for the water supply for the Redwood maintenance facility, a No Action Alternative and the Proposed Action Alternative.

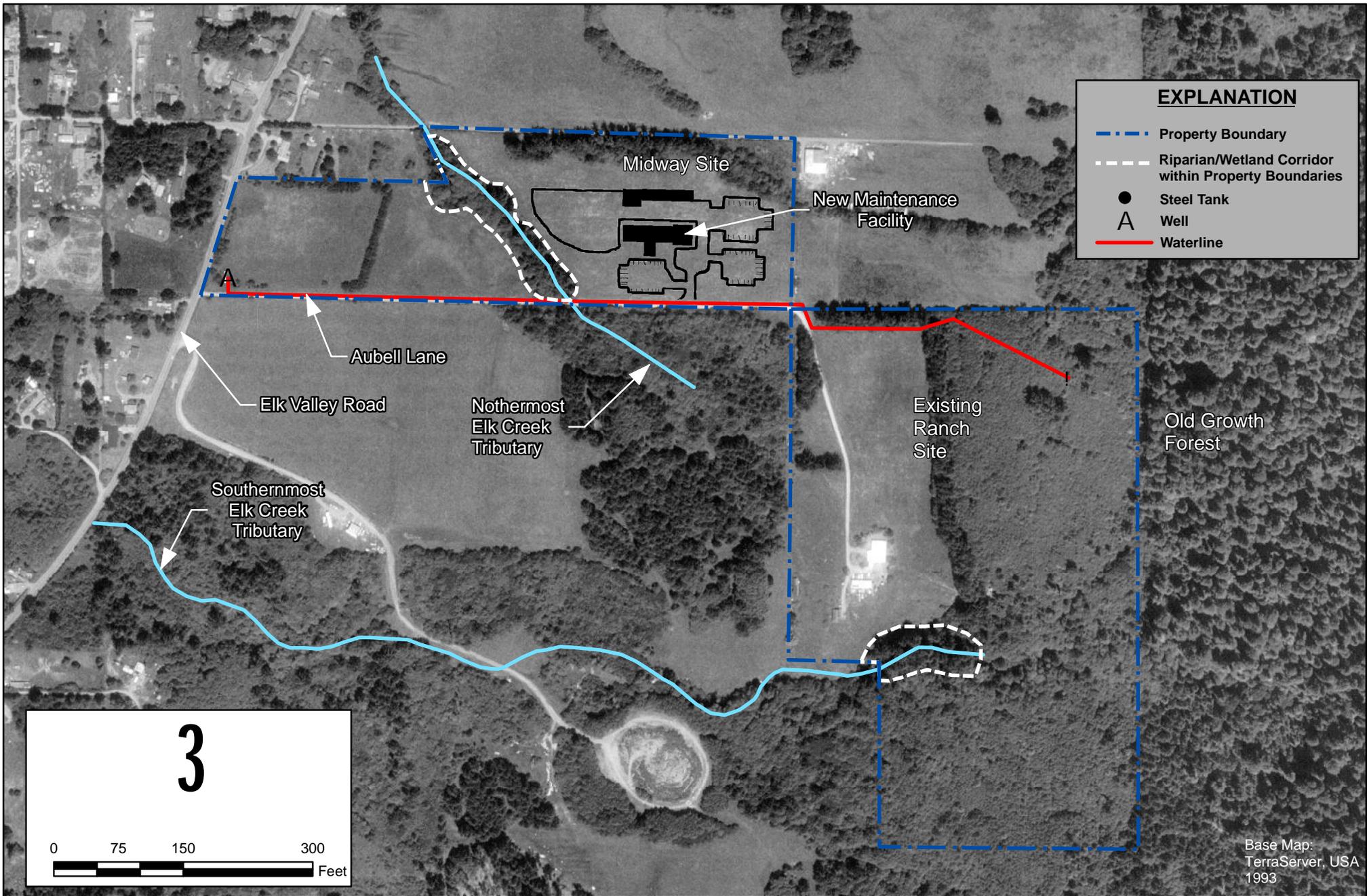
Alternative 1: No Action

Under the 2005 FONSI for the RMFR EA/IS/MND, the water supply would have been obtained from the City of Crescent City municipal water supply via the BOVCSD system with a line across the Elk Valley Rancheria Stary Ranch Property. The waterline for the new maintenance facility would connect at the property boundary between Rancheria and Aubell. The length of the waterline would be approximately 600 feet from the property line to Aubell Lane. The waterline would continue east on Aubell Lane, crossing the unnamed tributary of Elk Creek, to the new maintenance facility. After further site-specific planning, this proposal was determined to be infeasible as the Rancheria withdrew permission to cross their lands. Therefore, the Redwood maintenance facility would not be able to connect with City water, which would not allow the project to move forward.

The Alternative 1: No Action provides a baseline from which to compare the Proposed Action Alternative for the environmental assessment, evaluate the magnitude of proposed changes, and measure the environmental effects of those changes.

Alternative 2: On-Site Water (Proposed Action)

The Alternative 2: On-Site Water (Proposed Action) consists of installing a water well, waterline, and water storage tank to support the water needs for the new maintenance facility as shown in Figure 3. The waterline would be approximately 3,330 feet in total length from the wellhead to the water tank and would be standard 10-inch plastic waterline pipe. The water tank would hold approximately 70,000 gallons of water and be constructed of carbon steel. The construction of the water system would occur at the same time as the construction of the new maintenance facility. The portion of the water supply within $\frac{1}{4}$ mile of old growth would be constructed during the non-nesting season. This alternative was not considered or evaluated in the prior RMFR EA/IS/MND or the 2005 FONSI.



EXPLANATION

- - - Property Boundary
- - - Riparian/Wetland Corridor within Property Boundaries
- Steel Tank
- A Well
- Waterline

3

0 75 150 300 Feet

Base Map:
TerraServer, USA
1993

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Date: 03/07/2007

Redwood Maintenance Facility Water System Installation
 Environmental Assessment
 Redwood National and State Parks, California

Proposed Action Alternative Aubell Area

FIGURE

3

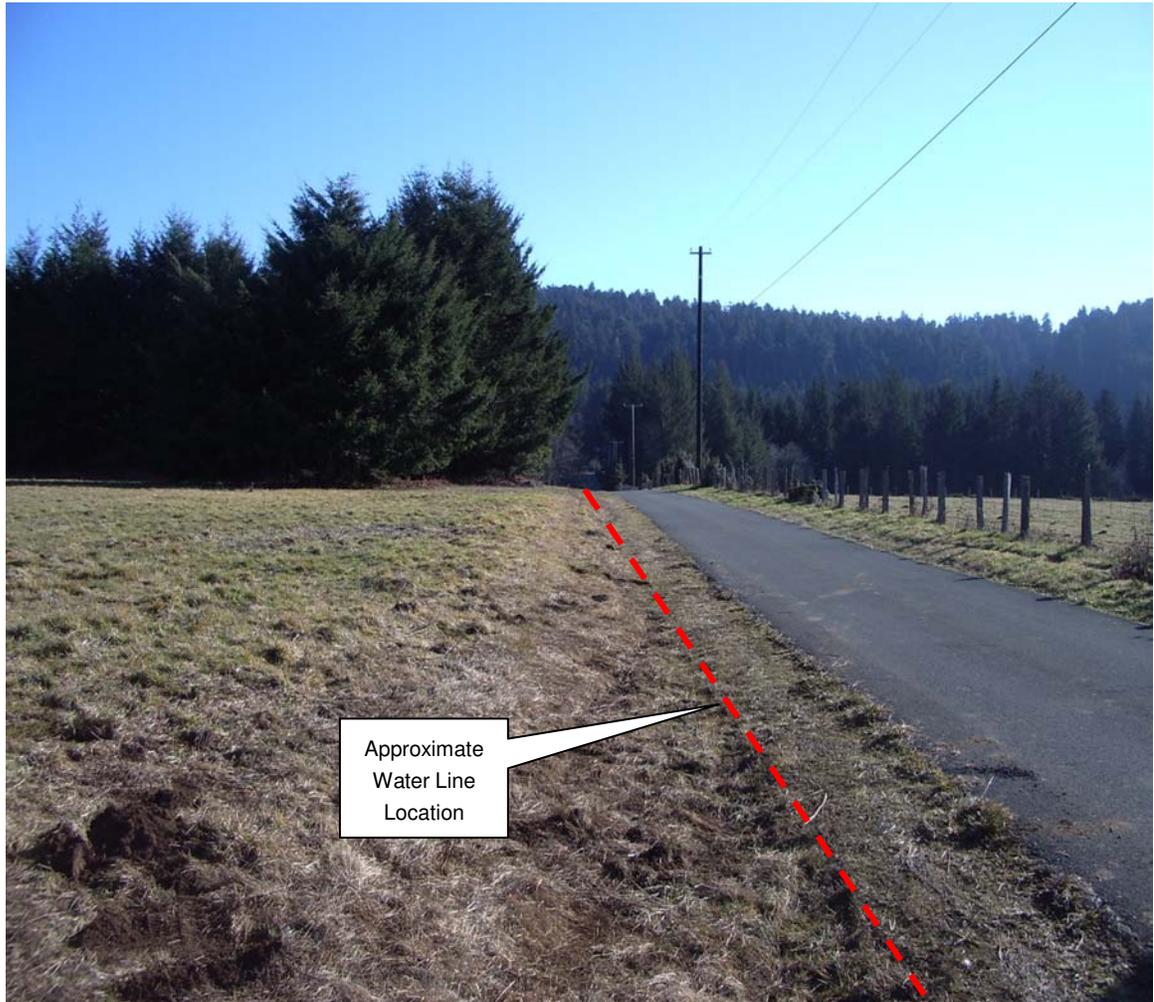
FIGURE 4: TEST WELL LOCATION



A test well was drilled in the western end of the Aubell site near Elk Valley Road and Aubell Lane (Figure 4). The test well log indicates that the test well was screened from 37 feet to 57 feet below ground surface. Subsurface sediments consist of clay from a depth of 3 feet to 26 feet per the test well log. According to the test well log, a 24 hour pump test was performed at a rate of more than 25 gallons per minute. Results from the test well verified that a well at this location would produce substantially more water than needed for this facility after the fire water storage tank is filled. The tank would be filled over a period of time so as to not adversely affect the water table in the area. The producing aquifer would be located at the same depth as the screened interval. Due to the depth of the aquifer and the overlying clay layer, it is not likely that pumping of groundwater would impact surface features or reduce creek flow. A county well permit will be obtained to verify this conclusion. The county uses a database of information to determine allowable zones where water can be drawn.

The wellhead building would be constructed in a similar style as the new maintenance facility structures and would house the well and the pump system. Approximately 40 feet of waterline would be trenched from the wellhead to the road prism through the existing pasture. Electrical power service would be available from nearby above ground utility poles (about 50 feet) located adjacent to Aubell Lane.

FIGURE 5: PROPOSED WATERLINE LOCATION



The waterline would cross the unnamed tributary of Elk Creek within the planned road prism for the RMFR. The waterline would extend within the two-lane road prism approximately 2,180 feet to the east along Aubell Lane. The waterline would continue from the east end of the two-lane road (Aubell Lane) along an existing logging road to the water tank site approximately 1,100 feet. Minor improvements to the existing logging road would consist of light grading and placing four inches of gravel along the approximately 12 feet wide corridor. The waterline trench would be approximately two feet wide and approximately three feet in depth. The area disturbed during construction would be approximately 12 to 14 feet wide.

FIGURE 6: PROPOSED TANK LOCATION



The water storage tank would be constructed within the prism of an abandoned logging road (Figure 6). Low shrubs and immature trees would be grubbed out of an area approximately 20 feet wide along the abandoned logging road and about 60 feet in diameter at the tank site. The tank pad would be 28-feet in diameter and placed within the 60 foot grubbed out area. The bolted steel water tank would be 25-feet in diameter and approximately 20-feet tall with a capacity of 70,000 gallon, which would be constructed on the tank pad. Gravel would be placed around the tank pad to minimize upkeep around the water tank. Electric power for the water supply system would be provided as part of the development of the new maintenance facility.

Construction Schedule

Construction of the water system would coincide with the construction of the new maintenance facility, which is expected to begin in spring 2008 and be completed by fall 2009. To avoid impacts to threatened bird species from construction noise during nesting seasons, the tank and 500 feet of the water line that are within $\frac{1}{4}$ mile of old growth forest would be constructed outside the nesting seasons.

Environmentally Preferred Alternative

The environmentally preferred alternative is the one that best meets the criteria identified in Section 101 of the National Environmental Policy Act (NEPA) as outlined below.

Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations

- Assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences
- Preserve important historic, cultural and natural aspects of our national heritage and maintain wherever possible, an environment that supports diversity and variety of individual choice
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources

The NPS has determined that Alternative 2: On-Site Water (the Proposed Action) is the environmentally preferred alternative. All construction under the proposed action would occur in previously disturbed soils and vegetation. The proposed action would require less ground disturbance to install an on-site water supply than would be required under the no action alternative to extend a waterline several miles from the existing community water supply. Under the proposed action, there would be no effects to sensitive species or significant cultural resources. The new waterline would be attached as part of the common utility line that would be constructed to cross the unnamed tributary of Elk Creek as part of the new wider access road and arch culvert designed to enhance floodplain and riparian wetland values of the tributary and enhance critical habitat for coho salmon over the long-term. Under the no action alternative, the waterline would also be attached as part of the common utility line that would be constructed to cross the unnamed tributary of Elk Creek.

Considered but Dismissed

The Redwood Maintenance Facility Relocation Environmental Assessment (December 2004) stated that the water source would be supplied by connecting to the Bertsch-Ocean View Community Services District (BOVCSD) water supply via a 10-inch water pipe installed along Elk Valley Road. The site-specific design analysis of this alternative indicated that installation of a waterline along Elk Valley Road would result in greater impacts to traffic and residences along Elk Valley Road for a longer period of time than other alternatives for supplying water because of the trenching required to lay the line and the area of disturbance that would result. The cost of extending the line from the nearest available municipal connection was greater than providing on-site water, and there were concerns that extension of a water line would induce growth at a level that was not considered in the latest revision of the Del Norte County General Plan.

Comparison of Alternatives

Table 1 summarizes and compares the potential environmental consequences associated with each alternative pursuant to NEPA. Potential environmental consequences are analyzed in more detail in Chapter 4, Environmental Consequences.

Table 1: Summary of Impact Topics

Impact Topic	Alternative 1: No Action	Alternative 2: On-Site Water (Proposed Action)
Geologic, Geologic Hazard, and Soils	Under the No Action Alternative, the result would be no adverse effect on geological resources and there are no known significant geological hazards at Aubell. There would be local, long-term negligible impact associated with geological resources, geologic hazards, and erosion.	Same as Alternative 1: No Action.
Hydrology, floodplains, and water quality	The hydrology of the area would not change because of this project. The ability to convey floodwaters would not be adversely affected; therefore there would be a long-term negligible impact to flooding and water quality.	The ability to convey floodwaters would not be adversely affected with this alternative. The waterline would be placed within the road prism and the well and water tank would not be placed near the floodplain. Therefore, long-term impact to flooding and water quality would be negligible.
Wetlands	The waterline would be placed within the road prism at the Midway site at Aubell. Impact would be long-term negligible impact to riparian wetlands.	The waterline would be placed within the road prism at the Midway site at Aubell. The well and water tank would not be placed near wetland areas at Aubell. Therefore, there would be a long-term negligible impact to riparian wetlands.
Vegetation	Native vegetation would not be adversely effect by the No Action Alternative. There would be short-term minor impacts to vegetation due to construction. Due to revegetation practices the long-term impact would be negligible.	Under the Proposed Action Alternative vegetation would be disturbed from the well head to Aubell Lane, along the road prism, as well as access corridor improvements to the water tank, at the east end of the project. Due to construction there would be short-term minor impacts and in the long-term impacts would be negligible.
Wildlife	Under the No Action Alternative, there would be short-term minor impact due to construction of the waterline and negligible long-term impact on wildlife.	Under the Proposed Action Alternative, there would be short-term negligible to minor impact due to construction of the waterline, well and water tank. Long-term impact would be negligible on wildlife.
Special-status species	Implementation of BMPs and mitigation measures would result in local, short- and long-term, negligible adverse impacts on special status species.	Construction of the waterline, tank and well would have adverse effects on special-status species due to exposure to noise and human disturbance. Implementation of BMPs and mitigation measures would result in local, short- and long-term, negligible adverse impacts on special status species.
Air quality	Water line construction at Aubell would have negligible, short-term adverse effects on air quality from vehicle emissions and fugitive dust from exposed soils.	Construction of the waterline, tank and well at Aubell would have negligible, short-term adverse effects on air quality from vehicle emissions and fugitive dust from exposed soils.
Natural soundscapes	Impacts would have a minor short-term adverse effect on the natural soundscape due to waterline construction. In the long-term the impact would be negligible.	Construction of the waterline, tank and well at Aubell would have minor, short-term adverse effects on natural soundscape. Long-term the impact would be negligible.
Cultural Resources	No known cultural impacts exist in the project study area. If during construction activities cultural resources were discovered, work would stop and coordination with appropriate regulatory agencies would occur prior to resuming construction activities.	Same as Alternative 1: No Action.
Scenic Resources	Short-term minor adverse impact during construction. Scenic resources would not be impacted once construction was completed.	Short-term minor adverse impact during construction. And long-term minor adverse impacts due to the water storage tank and wellhead house.
Park Operations and Facilities	Operation of park maintenance functions would have a long-term, minor, beneficial effect on the quality and effectiveness of park operations.	Same as Alternative 1: No Action.

Mitigation Measures and Best Management Practices

The following protective measures would be developed and implemented, as appropriate, prior to, during, and/or after construction.

Mitigation Measure/ BMP Number	Mitigation Measure/BMP Description	Implementation Responsibility	Critical Milestones
Geology, Geologic Hazards and Soils			
1	Conserve and salvage topsoil for reuse. Materials would be reused to the maximum extent possible.	Construction Contractor	During construction
Wetlands			
2	Avoid effects on waterways and wetlands during construction activities. Use protective materials identified in park and agency best management practices.	Construction contractor	During construction
Vegetation			
3	Avoid removal and damage to large trees. Retain native trees with a diameter of 20 inches or greater at breast height throughout the site. Removal of trees greater than 20 inches in diameter at breast height would require approval by park management. Removed trees to be used as mulch material.	Construction contractor	Prior to and during construction
4	Seed or plant bare natural areas disturbed by construction activities using native species.	Construction contractor	During construction
5	Implement a non-native species control program in accordance with the Redwood National and State Parks <i>Exotic Plant Management Plan</i> that conforms with Executive Order 13122 – Invasive Species. Standard measures include the following elements: ensure construction-related equipment arrives on site free of mud or seed-bearing material, use native seeds and straw materials to the extent feasible, and identify and treat areas of non-native species prior to construction.	NPS/CDPR, Construction Contractor	Prior to and during construction
6	Monitor restored areas as necessary annually for three years to prevent invasion of non-native weeds, absence of erosion features, 75 percent survivorship of plantings, plant maintenance, and replacement of unsuccessful plant materials.	NPS/CDPR	Following construction
7	All trees to be removed shall be identified on site prior to construction using visible markings within the vegetation clearing limit. Trees to remain on site (i.e., saved trees outside of the vegetation clearing limit) would be protected during construction. Excavation adjacent to any trees, when permitted, would be in such a manner that would cause only minimal root damage.	NPS/CDPR, Construction Contractor	Prior to and during construction
8	Standard methods to reduce potential for importing or spreading non-native plant diseases would be employed.	NPS/CDPR, Construction Contractor	Prior to and during construction
Wildlife			
9	All trash that may attract wildlife shall be contained and removed daily from the site(s).	NPS/CDPR, Construction Contractor	Throughout project timeline
Special-status Species			

Mitigation Measure/ BMP Number	Mitigation Measure/BMP Description	Implementation Responsibility	Critical Milestones
10	Northern spotted owl surveys would be conducted prior to construction activities, and should this species or other listed special-status species be found within the second-growth forest strip in the Aubell area, additional agency consultation would be undertaken with the U.S. Fish and Wildlife Service to determine construction stipulations that would be required. Construction stipulations may include implementing work restrictions in accordance with the limiting operating procedure, which would limit construction activities between two hours after sunrise to two hours before sunset February 1 through July 31 (if owls are found) or February 1 through September 15 (if owl nests are found), and conducting periodic monitoring to ensure that listed species are not present. Additional measures identified would be implemented prior to and during project construction, and could include restrictions on construction timing, identification of special-status species protection buffers, and modification of facility site.	NPS/CDPR, Construction Contractor	Prior to and during Construction
11	Construction within 825 feet of the old growth redwood (approximately 30+00 on figure C3.6 or 500 feet down the waterline from the tank) shall not occur between the dates of March 24 through September 15.	NPS/CDPR, Construction Contractor	Prior to and during Construction
12	Implement on-going program and new measures to reduce potential threats to listed special-status bird species as part of the <i>Conservation Strategy for Managing Threatened and Endangered Species in Redwood National and State Parks</i> (NPS 2003a), including but not limited to, noise reduction measures, and stopping work if listed special-status bird species are encountered during project activities.	NPS/CDPR, Construction Contractor	Prior to and during Construction
13	To avoid disturbance to bird species protected under the Migratory Bird Treaty Act, NPS would remove nesting substrate that would be subsequently disturbed by construction (trees and large shrubs) before the nesting season (May 1 through July 31) to encourage migratory birds to select nesting trees outside the project area. Nesting trees for migratory birds are abundant in the parks. Note: the clearing and grubbing would have to take place the year prior construction of water system.	NPS/CDPR	Prior to Construction
Air Quality			
14	Cover truck beds for vehicles leaving construction sites to minimize blowing dust or loss of debris.	Construction Contractor	During Construction
15	Limit truck and related construction equipment speeds in active construction areas (e.g., exposed dirt surfaces) to a maximum of 25 miles per hour and strictly adhere to park regulations and posted speed limits in other areas while inside park boundaries	Construction Contractor	During Construction
16	Maintain adequate dust suppression equipment and use clean water to control excess airborne particulates at staging areas, active construction zones, and unpaved roads leading to/from active construction areas.	Construction Contractor	During Construction
Natural Soundscapes			
17	Ensure that all construction equipment has functional exhaust/muffler systems.	Construction Contractor	During Construction
18	Locate stationary noise sources as far from sensitive receptors (e.g., residences) to the extent possible.	NPS/CDPR, Construction Contractor	During design phase, construction, and operation
19	Limit the idling of motors, except as necessary (e.g., concrete mixing trucks).	NPS/CDPR, Construction Contractor	During construction, and operation

Mitigation Measure/ BMP Number	Mitigation Measure/BMP Description	Implementation Responsibility	Critical Milestones
Cultural Resources			
20	A qualified archeologist, as directed by NPS/CDPR, shall monitor ground disturbing construction activities until it is determined that no subsurface cultural resources exist within the area of potential effect for the Aubell area.	NPS/CDPR	During construction
21	In the event unknown cultural resources are encountered within Aubell area during the course of construction, e.g. lithic scatters, charcoal residue, burial remains, the findings shall be examined by a qualified archeologist per the Secretary of the Interior's Professional Qualifications Standards for Archaeology (48 FR 44739. In the event of the discovery of human remains, the California Health and Safety Code, Section 7050.5, requires that construction or excavation stop in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the Native American Heritage Commission, and the project sponsors must comply with state and federal laws relating to the disposition of Native American burials.	NPS/CDPR	During construction
22	<p>If human remains of Native American origin are discovered on federal lands during project construction, NPS shall comply with Native American Graves Protection and Repatriation Act regulations relating to the discovery of human remains of Native American origin on federal lands. The regulations implementing the requirements of Native American Graves Protection and Repatriation Act relating to the inadvertent discovery of human remains of Native American origin are described in 43 CFR Part 10, Subpart B, Section 10.4:</p> <ul style="list-style-type: none"> ▪ Notify in writing the responsible federal agency and ▪ Cease activity in the area of the discovery and protect the human remains <p>Upon notification that human remains have been discovered on federal land, the responsible federal agency would:</p> <ul style="list-style-type: none"> ▪ Certify receipt of the notification. ▪ Take steps to secure and protect the human remains. ▪ Notify the Native American Tribe or Tribes likely to be culturally affiliated with the discovered human remains within one working day. ▪ Initiate consultation with the Native American Tribe or Tribes in accordance with regulations described in 43 CFR Part 10, Subpart B Section 10.5. 	NPS/CDPR	During construction
Scenic Resources			
23	Design color of water storage tank and associate structures to match the vernacular of the landscape.	Construction Contractor	Prior to and during construction
24	Where feasible, consolidate construction equipment and materials to the staging areas at the end of each workday to limit the visual intrusion of construction equipment during non-work hours.	Construction Contractor	Prior to and during construction
Park Operations and Facilities			
25	Identify the construction zone and inspect the project to ensure that impacts stay within the parameters of the project area and do not escalate beyond the scope of the environmental compliance documentation, as well as to ensure that the project conforms to all applicable permits or project conditions. Store all construction equipment within the delineated work limits. Confine work areas within stream channels to the smallest area necessary.	NPS/CDPR, Construction Contractor	Prior to and during construction

Mitigation Measure/ BMP Number	Mitigation Measure/BMP Description	Implementation Responsibility	Critical Milestones
26	Implement compliance monitoring to ensure that the project remains within the parameters of NEPA, CEQA (when applicable), and National Historic Preservation Act compliance documents, all applicable permits, etc.	NPS/CDPR, Construction Contractor	Prior to and during construction
27	Provide a project orientation for all construction workers to increase their understanding and sensitivity to the challenges of the special environment in which they would be working.	NPS/CDPR, Construction Contractor	Prior to and during construction
28	Remove all tools, equipment, surplus materials, and rubbish from the project work limits upon project completion. Remove all debris from the project area.	Construction Contractor	During construction
29	Develop and implement a safety plan, which includes emergency notification procedure that complies with park, federal, and state requirements and allows contractors or staff to properly notify park, federal, and/or state personnel in the event of an emergency during construction activities. This would address notification requirements related to fire, personnel, and/or visitor injury, releases of spilled material, evacuation processes, etc. The emergency notification procedure would be submitted to the parks for review/approval prior to implementation and start of work.	NPS/CDPR, Construction Contractor	Prior to and during construction
30	Provide protective fencing enclosures around construction areas, including utility trenches, to protect public health and safety. Access to active construction areas would be restricted to authorized personnel only.	NPS/CDPR, Construction Contractor	Prior to and during construction
31	Consult with utilities companies (i.e., water, wastewater, electric, communications, and telephone service suppliers) prior to the start of construction to determine the location of utilities within the project area. Locate and flag existing utility lines, pipelines, etc., and appropriate buffer zones, prior to the start of any excavation, heavy equipment use, or other activities that could damage the utilities. Advise the Underground Services Alert and agency maintenance staff at least 72 hours in advance of any planned ground disturbance in the vicinity of these areas (or in accordance with notification requirements).	NPS/CDPR, Construction Contractor	Prior to and during construction
32	Minimize the use of hazardous materials for the project. Store and use all hazardous materials in compliance with federal regulations. All applicable Materials Safety Data Sheets would be kept on site for inspection. Dispose of hazardous materials at a licensed facility	NPS/CDPR, Construction Contractor	Throughout project timeline
33	Develop and implement a comprehensive spill prevention/response plan that complies with federal and state regulations and addresses all aspects of spill prevention, notification, emergency spill response strategies for spills occurring on land and water, reporting requirements, monitoring requirements, personnel responsibilities, response equipment type and location, and training requirements. The spill prevention/response plan would be submitted to the parks for review/approval prior to commencement of construction activities.	NPS/CDPR, Construction Contractor	Throughout project timeline
34	Prior to entry into the parks, clean heavy equipment to prevent importation of non-native plant species, tighten hydraulic fittings, ensure hydraulic hoses are in good condition and replace if damaged, and repair all petroleum leaks.	Construction Contractor	During construction

3 Affected Environment

Introduction

This section presents a description of the current conditions, by resource topic, analyzed in the Redwood Maintenance Facility Water Supply Installation EA.

Geology, Geologic Hazards, and Soils

Geologic Setting

The parks lie within the geologic region of California referred to as the Coast Ranges geomorphic province. Discontinuous northwest-trending mountain ranges, ridges, and intervening valleys composed of ancient seafloor rocks characterize this province. The Aubell area is underlain by younger Quaternary-age (1.6 million years ago to the present) alluvial deposits (California Geological Survey 1973).

The Aubell area is located on the eastern edge of an alluvial plain bordering the foothills of the Siskiyou Mountains. The majority of Aubell is located on a gentle western slope, with elevations increasing more rapidly on the eastern edge. Elevations range between approximately 75 feet to 125 feet above mean sea level.

Soils

Detailed mapping of soils underlying Aubell have not been conducted. For the most part, soils in the parks are deep, well-developed soils that are rich in organic matter and nutrients, and are largely derived from rocks of the Franciscan Assemblage. Soils within the parks contain a moderate amount of coarse-grained (sand and gravel) materials, but have little cohesion and possess very low shear strength. Gentle slopes at Aubell reduce erosion susceptibility and soils are generally well developed.

Geologic Hazards

Seismicity

The Aubell area is located in a seismically active area, as the North American, Pacific, and Gorda tectonic plates intersect approximately 100 miles southwest of the parks near Cape Mendocino. Seismic activity associated with the intersection of these faults has been the source of several large earthquakes in recent history, including nine earthquakes in the 1990's of Richter magnitude 6.0 and above (NPS 1999). Nearby potentially active faults include Sulphur Creek and Lost Man faults, located south of Aubell, in addition to several unnamed potentially active faults that underlie the Pacific Ocean west of Crescent City (California Geologic Survey 1994). The California Geologic Survey estimates that maximum ground shaking at Aubell and the surrounding

region may reach 0.2g to 0.3g (California Geologic Survey 1999). Ground shaking intensity of 0.2 to 0.4g is similar to that experienced in the San Francisco Bay Area during the 1989 Loma Prieta earthquake, which resulted in widespread structural and infrastructure damage. Therefore, the facilities at the Aubell area are susceptible to damage from ground shaking.

Erosion and Slope Instability

Ground failure is dependent on site slope and geology, as well as the amount of rainfall, excavation, or seismic activities. Steep slopes and downslope creep of surface materials characterize landslide-susceptible areas. Areas of the parks are susceptible to erosion and slope instability, particularly during periods of high precipitation in steep terrain. Aubell is located on relatively gentle slopes and has not historically been subject to landslides or severe soil erosion. Although surface water flows can cause erosion, an unnamed tributary of Elk Creek traverses the Aubell area in a shallow streambed corridor that is absent of culverts, bridges, slope armoring, or existing erosional features such as cut banks.

Hydrology, Floodplains, and Water Quality

Surface Water

Freshwater resources in the vicinity of Aubell include tributaries of Elk Creek, which drains the Elk Valley. An intermittent stream that is one of several unnamed tributaries of Elk Creek traverses the Aubell site. The stream originates west and south of the Existing Ranch and Midway sites, respectively, and flows northwest where it denotes the boundary between the Midway and Elk Valley Road sites. Another unnamed tributary of Elk Creek originates just west of the Existing Ranch site, and merges with Elk Creek approximately one mile west of Aubell. Elk Creek eventually discharges into the Crescent City Harbor and into several unnamed lakes immediately east of downtown Crescent City.

Floodplains and Flooding

Aubell is not located within or immediately adjacent to a 100-year flood zone, as classified by the Federal Emergency Management Agency (FEMA 1983 and 1986). The 100-year flood flows of the unnamed tributaries of Elk Creek located at the Aubell area do not overflow their existing banks. These areas are not within a tsunami hazard area (Humboldt State University 2001).

Water Quality

The North Coast Regional Water Quality Control Board has not established beneficial uses for Elk Creek. However, established beneficial uses for the Crescent City Harbor include freshwater replenishment, navigation, cold water and marine habitat, wildlife and migratory habitat, boating and other recreation, and habitat for rare, endangered, or threatened species. (California Regional Water Quality Control Board, 1993).

Overall, water quality in Redwood National and State Parks near the project sites meets or exceeds the water quality objectives established by the North Coast Regional Water Quality Control Board. The existing structure at the Aubell area is serviced by a septic system sized for residential use, and consists of a septic tank and leach field. The system is considered adequate to handle wastewater flows from the existing ranch house and no information exists to indicate groundwater quality in the immediate area has been compromised. Aubell is composed of fallow pasture lands and forests, and no animal grazing or farming activities occur. There is no evidence of recent timber harvesting operations.

Wetlands

Specific wetland and deepwater classes within the Aubell area are limited to palustrine forested streams and palustrine emergent wetlands.

The northern portion of the Aubell area supports the upper reach of a palustrine forested broad-leaf deciduous temporarily flooded stream, which traverses the Aubell area and reaches southeast to northwest and crosses Aubell Lane Figure 6. The southern portion of the Aubell area supports the upper reach of a palustrine forested broad-leaf deciduous seasonally flooded stream that reaches from east to west and is located about ¼-mile south of Aubell Lane (Figure 6). Both palustrine streams support dense riparian vegetation, including red alder (*Alnus rubra*) and Sitka spruce (*Picea sitchensis*). These palustrine streams are tributaries to Elk Creek, which reach to the Pacific Ocean.

An adjacent palustrine emergent wetland occurs along the palustrine stream at Aubell Lane. This wetland supports horsetail (*Equisetum* sp.) and rushes (*Juncus* spp.)

Both streams (excluding riparian vegetation) and the emergent wetland would be regulated as waters of the U.S., and subject to the jurisdictions of the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act and the North Coast Regional Water Quality Control Board under Section 401 of the Clean Water Act. The aquatic streams and their associated riparian vegetation are subject to the jurisdiction of the California Department of Fish and Game under Section 1602 of California Fish and Game Code.

Vegetation

Plant communities within the Aubell area include Sitka spruce forest, red alder/Sitka spruce forest, and annual prairie grassland. Old-growth redwood forest occurs more than a quarter mile east of the Elk Valley Road and Midway sites. These communities are described below.

Sitka spruce forest occurs as an upland community and riparian community. Sitka spruce forest is fairly dense in some areas and sparse in others. It is a second-growth forest within the project area. Sitka spruce is the dominant conifer species. Associated species include red alder in the understory. Sitka spruce forest is interspersed with red

alder forest in upland and wetland areas. This integration occurs in upland areas since no wetland areas are present. Sitka spruce forest, along with other types of coniferous forests, eventually replaces red alder forest over time. Sitka spruce is the dominant species in upland areas, which is primarily east of the existing facility. Within riparian areas above the creeks, Sitka spruce is associated with coast redwood (*Sequoia sempervirens*) and big-leaf maple (*Acer macrophyllum*) in the overstory. The understory consists of many species, including red alder, rhododendrons (*Rhododendron* spp.) and sword fern (*Polystichum munitum*). This riparian community occurs primarily along the upper reach of the southernmost Elk Creek tributary.

Red alder/Sitka spruce riparian forest occurs along the northernmost Elk Creek tributary as well as along a portion of the southernmost Elk Valley tributary as a riparian corridor. Red alder and Sitka spruce are co-dominant in this community.

Prairie grassland is the dominant community at the Aubell area. This community primarily consists of non-native annual wildflowers and grasses. Non-native Himalayan blackberry (*Rubus discolor*) is also scattered throughout the grassland. Few native species, such as California bottlebrush (*Elymus californicus*) and beach strawberry (*Fragaria chiloensis*), are present. The prairie is highly disturbed in some locations as evidenced by the lack of vegetation and exposed bare soil. A small patch of native grass occurs approximately 500 feet north of the existing buildings in the Existing Ranch site.

Old-growth redwood forest occurs east of second-growth Sitka spruce forest adjacent to the Aubell area (see Figure 6).

Wildlife

As described in the parks *Final General Management Plan / General Plan, Environmental Impact Statement / Environmental Impact Report*, animal species diversity in younger-aged forests is lower than in other habitats such as riparian forests (NPS 1999). The mosaic of various habitats provides wildlife diversity.

Moist, cool, forested environments provide habitat for amphibians such as Pacific giant salamander (*Dicamptodon ensatus*), California slender salamander (*Batrachoseps attenuatus*), and northern rough-skinned newt (*Taricha granulose*). Streams at the Aubell area provide habitat for Pacific treefrog (*Hyla regilla*) and the other aforementioned amphibians. Reptiles, such as gopher snakes (*Pituophis melanoleucus*), common garter snakes (*Thamnophis* spp.), and western fence lizard (*Sceloporus occidentalis*) are found in dry upland areas such as in the prairie grassland at the Aubell area.

Approximately 200 birds are known to breed in the Redwood National and State Parks. The Aubell area provides habitat for such bird species as chestnut-backed chickadee (*Parus rufescens*) and winter wren (*Troglodytes troglodytes*) within coastal forests. These species along with the yellow breasted chat (*Icteria virens*) may also nest in riparian habitats at the Aubell area. Trees and snags at both areas provide nesting habitat for

owls and other raptors. Raptors, such as red-tailed hawk (*Buteo jamaicensis*), sharp-shinned hawk (*Accipiter striatus*), and Cooper's hawk (*Accipiter cooperii*), may breed and nest in riparian habitats at the Aubell area.

Coastal riparian areas at the Aubell area are important foraging grounds for aerial species, such as *Myotis* bat species, and ground-foraging insectivores, such as shrews (*Sorex* spp.) and moles (*Scapanus* spp.). Mammals such as western harvest mouse (*Reithrodontomys* spp.), deer mouse (*Peromyscus* spp.), western gray squirrel (*Sciurus griseus*), and raccoon (*Procyon lotor*) may also utilize streamside habitats for breeding and foraging at the Aubell area. Pacific fisher (*Martes pennanti*) may use forest habitats for feeding on small mammals, cover, and reproduction at the Aubell area. Mammals, including bobcat (*Lynx rufus*) and gray fox (*Urocyon cinereoargenteus*), may feed on small mammals and birds within the project area. Black bear (*Ursus americanus*) may forage in forests within the Aubell area. Cougars (*Felis concolor*) have been observed at the forest edge near the Existing Ranch site. Black-tail deer (*Odocoileus hemionus sitkensis*) are common. The prairie areas described above under vegetation, primarily west of the northernmost tributary to Elk Creek, are inhabited by Roosevelt elk (*Cervus elaphus roosevelti*). This species may use the Aubell area second-growth forest for mating, cover, and shade.

Special-status Species

Special-status species are those listed or proposed to be listed as rare, threatened or endangered by the state of California or under the federal Endangered Species Act; federal candidate species for listing; or species identified by the California Department of Fish and Game as species of special concern. The Aubell area or its vicinity contains habitat for or supports 9 special-status species (Table 2). There are no special-status plants known to occur in the project area.

Table 2: Special Status Species

<u>Federal or State Listed Species</u>	<u>State Species of Concern</u>
<ul style="list-style-type: none"> ▪ Marbled murrelet ▪ Northern spotted owl ▪ Coho salmon, Southern Oregon/ Northern California Coast ESU 	<ul style="list-style-type: none"> ▪ Cooper’s hawk ▪ Sharp Shinned hawk ▪ Yellow-breasted chat ▪ Northern red-legged frog ▪ Foothill yellow-legged frog ▪ Coastal cutthroat trout

Impacts to special-status species address federal listed species of concern. All impacts to state listed and state species of concern are addressed in the wilderness section of this environmental assessment.

Northern spotted owls are not presumed to be present in the project area because protocol surveys have not detected them. Northern spotted owls are federally listed as threatened. There is no designated critical habitat for northern spotted owls in Redwood National and State Parks.

Marbled murrelets are presumed to be existing adjacent to the project area based on the presence of suitable habitat in the old growth forest in Jedediah Smith Redwoods State Park. Marbled murrelets are federally listed as threatened and state listed as endangered. The water tank and portions of the water line closest to the tank are within one-quarter mile of the nearest suitable murrelet habitat. Jedediah Smith Redwoods State Park contains designated critical habitat for marbled murrelets; the suitable habitat within one-quarter mile of the project area is designated critical habitat. Suitable habitat on federal parklands has not been designated as critical habitat for marbled murrelets.

Coho salmon were found in the unnamed tributary of Elk Creek upstream of Elk Valley Road and downstream of the Midway site in February 2005. The coho salmon in the project area are listed as threatened under both the federal and state endangered species acts. Elk Creek and its unnamed tributary within the project area are designated critical habitat for the Southern Oregon/Northern California Coast (SONCC) coho salmon. Designated critical habitat for the SONCC coho salmon includes all reaches of streams accessible to coho salmon in RNSP. Critical habitat consists of the water, substrate and adjacent riparian zones. Accessible reaches are those within their historical range that can still be occupied by any life stage of salmon. Coastal cutthroat trout are also known to occur in Elk Creek downstream of the project area and are likely to occur within the project area.

Several special-status birds and amphibians are likely to occur in or near the project area (Table 2) but no surveys have been conducted specifically for these species. Northern red-legged frogs have been observed in the project area.

-Critical Habitat

The three state parks (Jedediah Smith Redwoods, Del Norte Coast Redwoods, and Prairie Creek Redwoods State Parks) within Redwood National and State Parks contain designated critical habitat for marbled murrelet and coho salmon (NPS 1999). Critical habitat for marbled murrelet does not occur on federal parklands and suitable habitat for the species is located more than a quarter ($\frac{1}{4}$) mile from the Aubell site. There is no critical habitat designated for northern spotted owl in Redwood National and State Parks. Critical habitat for the southern Oregon/California coastal populations of coho salmon was proposed by the National Oceanic Atmospheric Administration Fisheries in 1998 for all streams accessible to these species. There are no sections of streams within the parks that are inaccessible by specific structures identified by the National Oceanic Atmospheric Administration Fisheries. Elk Creek (downstream of the Aubell area) supports critical habitat for coho salmon.

Air Quality

The national park has been designated as a Class I air shed pursuant to Part C of the Clean Air Act, as amended (42 United States Code 7401 et al.). The Class I designation is given to areas where air quality is cleaner than the national ambient air quality standards. Class I areas have the most stringent regulations for the protection of air quality, permitting the lowest increments of air quality degradation (NPS 1999). The unit manager has an affirmative responsibility to protect visibility and all other class I area air quality related values from the adverse effects of air pollution.

The Aubell area is located in the North Coast Air Basin of the California Air Resources Board, which is under the jurisdiction of the North Coast Unified Air Quality Management District. A particle monitor in the parks measures fine particle mass (matter less than 2.5 micrometers in diameter), sulfates, nitrates, and aerosol elemental composition. An ozone and meteorological monitoring site operated in the parks between 1987 and 1995. Other monitoring stations are in Crescent City and Eureka (NPS 1999). The Crescent City (Northcrest) air monitoring station is located near the intersection of Northcrest Drive and West Harding Avenue, approximately three miles west of the Aubell area. The Crescent City station has monitored PM-10 (particulate matter less than 10 micrometers in diameter) since 1998. State or federal particulate standards were not exceeded in the records reviewed for the years (2001 through 2003) at the Northcrest station (California Air Resources Board 2004).

Air quality in the parks is considered good to excellent because of the low population, scarcity of pollutant sources, and prevailing westerly ocean winds. All federal standards are consistently achieved, including those for ozone, carbon monoxide, particulate matter, nitrogen dioxide, sulfur dioxide, and lead. An air pollutant of concern in the parks is PM-10, which is primarily from widespread non-industrial burning and the industrial burning of timber harvest slash piles. In the past, total suspended particulates exceeded air quality standards, but improved technology, better use of materials, and

fewer sawmills in the region have resulted in a reduction in suspended particulates (NPS 1999).

The federal Clean Air Act Amendments of 1970 established criteria standards for PM-10 and California has established its own air quality standards that are generally more restrictive than federal standards. The North Coast Air Basin is considered a state non-attainment area for PM-10, but is in attainment with or listed as unclassified for other state and federal air quality standards (California Air Resources Board 2004). Under guidelines set forth by the California Clean Air Act, each air quality district in the state is to achieve and maintain the state ambient air quality standards for PM-10 by the earliest practicable date.

Sensitive air quality receptors include residential areas, day care centers, schools, hospitals, nursing homes, and recreation areas. There are no day care centers, hospitals, or nursing homes in the project vicinity. Park visitors recreate in the parks near the Aubell area. Residences are adjacent to the Aubell area, and the Elk Valley Head Start School is located 0.5 miles south and the McCarthy Alternative Education Center is located approximately 1.5 miles west of the Aubell area.

Natural Soundscapes

An important part of NPS mission is the preservation of natural soundscapes associated with national park units. Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and be transmitted through air, water, or solid materials. The frequencies, magnitudes, and durations of human-caused sounds considered acceptable varies among NPS units, as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas.

By definition, noise is human-caused sound that is considered to be unpleasant and unwanted. One of the primary concerns with noise in the project area is its effect on special-status species. Noise has been identified as a source of disturbance and thus a potential threat to some listed threatened and endangered species, particularly to northern spotted owls and marbled murrelets during their respective breeding seasons (NPS 1999). Noise within the parks results from mechanical sources, such as motor vehicles, generators, and overhead aircraft, and from human activities such as shouting.

Some land uses are considered more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, libraries, churches, hospitals, and parks are generally more sensitive to noise than commercial and industrial land uses. Adjacent residences and park recreational users would be the closest sensitive receptors to the Aubell area. Sensitive land uses located near the Aubell area include six churches, which are located within 1.5 miles of the Aubell area.

Existing Noise Sources

The natural soundscape environment at the Aubell area is affected by the existing park maintenance and ranger facilities at the area, frequent vehicular traffic on Elk Valley Road, intermittent traffic on Aubell Lane, and occasional aircraft overflights, including private helicopter use by an adjacent neighbor.

Sound and noise levels are measured in units known as decibels (dB). For the purpose of this analysis, sound and noise levels are expressed in dB on the “A”-weighted scale (dBA). This scale most closely approximates the response characteristics of the human ear to low-level sound. Human hearing ranges from the threshold of hearing (0 dBA) to the threshold of pain (140 dBA). Environmental sound or noise levels typically fluctuate over time, and different types of noise descriptors are used to account for this variability.

Very limited measurements of noise have been taken in the park; those measurements taken were to estimate the noise generated by park maintenance activities in old-growth habitat. Background noise measured by park staff in the forest ranged from 45 to 60 dBAs. Qualitative determinations of noise levels can be made for general locations and noise sources throughout the park. Baseline, or ambient, levels of noise are highest in intensity and most frequent or of long duration in the U.S. Highway 101 corridor and in the vicinity of local communities (i.e., Crescent City) and their commercial and residential areas. The Aubell area also has elevated ambient noise levels due to its proximity to Crescent City and adjacent residences, frequent vehicular traffic on Elk Valley Road, and existing maintenance activities at the area.

Parks maintenance operations generate noise from staff, vehicles, generators, hand tools such as hammers and power saws, heavy equipment such as backhoes and tractors, and smaller power equipment such as chain saws and weed eaters. Noise from park operations above ambient levels is confined to daylight hours.

Cultural Resources

Prehistoric Context

The parks lie within the Northwest Coast cultural area, or the Lower Klamath sub area of Northwest California. The earliest archaeological evidence for human occupation in northwest California was identified from a suite of Borax Lake pattern sites located well inland (Fredrickson 1984; Hildebrandt and Hayes 1983). Exhibiting dates between 4500-1500 B.C., these sites consist of several small habitation sites found in mostly upland settings, but also to a lesser extent along lower-elevation river terraces. The artifacts associated with these sites reflect the activities of organized social groups and remain unaltered between environmental zones. Lacking tools used for acorn processing, the sites indicate a mainly foraging based economy.

By 1000 B.C., upland areas shifted from mainly open areas of pine, oaks, and shrubs to a montane forest, which reduced the productivity of subsistence resources (West 1989

and 1990). With this ecological shift, a concomitant change in the archeological record is seen, whereby upland residential bases were replaced by task-specific tool kits associated with hunting. Along with this change, the lowland residential bases became more permanently occupied, with increased use of salmon and acorns (Hildebrandt and Jones 2004). Further contributing to the level of permanence to lowland villages was the development of new fishing technologies and storage innovations (Testart 1982). With this shift in technology and settlement patterns, northwest California's prehistory shows a greater similarity to the cultural areas of Oregon, Washington, and British Columbia given the heavy reliance on fish resources.

With the exception of a few early, little known sites, the northern coast was not permanently occupied until about A.D. 500 (Hildebrandt and Jones 2004). By A.D. 1000, sites like the Point St. George site, north of Crescent City (Gould 1966 as cited in Moratto 1984), represented a host of sites that maintained sedentary villages on the coast devoted to marine resources. A subsequent archeological phase, known as the Gunther Pattern exemplified this reliance on maritime resources, as shown by the assemblages of harpoon points, woodworking tools, and stone net sinkers (Moratto 1984).

Archeological Resources

Approximately 30,000 acres (almost 30%) of the parks lands have been previously surveyed for archeological resources. One hundred and twenty archaeological sites have been recorded in the parks. The sites identified within Redwood National and State Parks are located inland and are primarily around Redwood Creek Basin.

Previous cultural resource investigations located four archeological sites within one mile of the Aubell area of potential effect. The two prehistoric sites, CA-Dno-281 and CA-Dno-1 (an isolate), represent lithic reduction processing that support the interpretation that the area supported hunting activities. Elk Valley is identified as a traditional Tolowa elk hunting area (tutne'sme translated 'Elk hunting tract'). Acorn gathering and processing activities were also prevalent. Deer hunting was associated with the village of Ta'ta'dun (his spelling of To'ot'dun) between Smith River and the redwood hills south of Crescent City (Drucker 1937 as cited in Sloan 2004). The entire Aubell area has been previously surveyed for cultural resources (Roscoe & Eidsness 1986; Haversat & Breschini 1987; Brown 1992).

A pedestrian field survey with 100 percent inspection and testing for buried cultural deposits was conducted in the Aubell area of potential effect for the RMFR project. Two potential historic properties were identified: the remains of a fence and a berm (Sloan 2004). No other cultural resources or features were located within the area of potential effect for the proposed project. Further examination of the fence remains and berm revealed that neither represents significant archaeological or cultural resources (Sloan 2004). An additional archeological inventory was conducted in the Aubell area of potential effect for the proposed maintenance facility water line and water tank. No significant archeological resources were identified (Peterson 2007).

Historic Resources

The Elk Valley area, which includes the Aubell project area, was settled by non-Indians in 1854. Historic uses of the area included livestock and agriculture as early as 1855. Subsequent land use in Elk Valley was predominately for timber extraction and other logging related operations between 1871 and 1920. Existing modern buildings near the Aubell project area includes two houses, one four-door garage, and a small barn. These structures are located outside the area of potential effects for the proposed action. No significant historic resources were identified during the pedestrian survey within the Aubell area of potential effect (Sloan 2004).

Ethnographic Resources

No traditional place of significance was identified within the project area (Sloan 2004).

Cultural Landscapes

Through research, fieldwork, and consultation with the Yurok Tribe, no such resources were identified within the area of potential effect (Sloan 2004).

Scenic Resources

Redwood National and State Parks are located in a regional setting that includes unique scenic resources, including the world's tallest trees. The visual resources within this region are a source of inspiration for park visitors.

FIGURE 7: AUBELL LANE



The Aubell area is visually characterized by pasturelands, which provides visual contrast and variety to the adjacent forested hillsides. The area is largely flat, with limited view sheds from the area to the surrounding landscape. The L-shaped parcel is bisected by a tributary of Elk Creek. The Elk Creek tributary introduces water as a visual element of the area and supports a forested riparian corridor that screens the Elk Valley Road site from the Midway site. The hardscape surface of Aubell Lane and Elk Valley Road form a clear demarcation of the property edge.

FIGURE 8: SMALL BARN IN THE AUBELL AREA



The existing ranch site is characterized by grassy swales with an eastern, southern and western, forested perimeter. Developed features are a dominant visual feature of the area, including two houses, a garage, and a small barn. The facilities formerly operated as a small ranch, and contribute to the agrarian visual character of the area. The Aubell area is not visible from a state scenic highway.

Park Operations and Facilities

Prior to acquisition by the California Department of Parks and Recreation, the Aubell area was used as a private residence and ranch. Existing facilities are located approximately ½-mile from Elk Valley Road accessed by Aubell Lane, a paved, single-lane roadway. The Aubell area includes two houses, a four-door garage, and a small barn. These facilities are currently used for park maintenance and ranger operations.

Aubell is currently served by an on-site surface water collection system of limited capacity, comprising an infiltration gallery collecting water from a natural spring. The water system filters the spring water through a slow sand filter, a chlorinator, and into a 1,200-gallon redwood water storage tank. The cost to install the new water supply would be less than the cost to run a pipeline across the Rancheria, while operation costs would be somewhat higher for operating the system for the parks. However, the cost of the water system operation would be offset by the absence of water fees.

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4 Environmental Consequences

Introduction

This chapter presents the methodologies used in the environmental impact analysis. The impact analyses sections are organized by alternative. Environmental impacts are summarized in Table 1: Summary of Impact Consequences, located towards the end of Chapter 2, Alternatives.

For purposes of this NEPA analysis, measures to mitigate impacts and best management practices to implement during construction activities were identified. Mitigation measures and best management practices are found in Table 2, located at the end of Chapter 2, Alternative.

Methodology

NEPA Analysis

The NEPA analysis of environmental impacts considers the context, duration, intensity, and type of impact, as defined below.

Context

The context of the impact addresses whether the impact would be local or regional. For the purposes of this analysis, local impacts would generally be those that occur within the immediate vicinity of the project area. Regional impacts would be impacts affecting the Crescent City area.

Duration and Intensity

The duration of the impact addresses whether the impact would occur in the short term or the long term. The intensity of the impact considers whether the effect would be negligible, minor, moderate, or major. A description of the duration and intensity of an impact is provided for each impact in Chapter 4, Environmental Consequences.

Type of Impact

Impacts were evaluated in terms of whether they would be beneficial or adverse. Beneficial impacts would improve resource conditions and adverse impacts would deplete or negatively alter resources.

Cumulative Impacts

Past, present, and reasonably foreseeable actions are evaluated in conjunction with the impacts of an alternative to determine if they have any additive effects on a particular resource. Because most of the reasonably foreseeable actions are in the early planning stages, the evaluation of cumulative impacts was based on a general description of the projects. Past, Present, and Reasonably Foreseeable Actions include:

- Redwoods Maintenance Facility Relocation (RMFR) Project – NPS and CDPR
- Elk Valley Rancheria Martin Ranch Project – Bureau of Indian Affairs and Elk Valley Rancheria
- Solid Waste Transfer Station – Del Norte County
- Elk Valley Road Improvements – Del Norte County
- Redwood National and State Parks Trail Plan – NPS and CDPR

Further information regarding the RMFR project is found in the RMFR EA/IS/MNDEA/IS/MND/IS. Further information regarding the other projects listed is found in Appendix A.

Non-Impairment of Park Resources and Values

Pursuant to the 1916 Organic Act, NPS has a management responsibility “to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” As a result, NPS cannot take an action that would “impair” the resources of Redwood National and State Parks (the parks). NPS *Management Policies 2006* (NPS 2006) provide guidance on addressing impairment.

Director’s Order #12 (NPS 2006) requires that impairment be addressed in all environmental assessments and draft and final environmental impact statements, as well as in the decision documents (Finding of No Significant Impact, Record of Decision). In this document, impairment is addressed in the conclusion section of each impact topic under each alternative.

An impact is likely to rise to the level of impairment if the resource or value affected is one whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Redwoods National Park; (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or (3) identified as a goal in the park’s general management plan or other relevant NPS planning documents.

NPS does not make impairment determinations for transportation, visitor experience, or park operations and facilities unless the impact is resource-based. The impairment that is prohibited by the Organic Act and the General Authorities Act is an impact that in the professional judgment of the responsible NPS manager would harm the integrity of cultural or natural resources or park values. This ensures that park resources and values

will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

Analysis of Environmental Consequences

Geology, Geologic Hazards, and Soils

Methodology and Regulations

Seismic Hazards

Review of existing literature and studies, park staff insights, professional judgment, and information provided by NPS experts and other agency experts were used to determine the impact analysis and the conclusions for possible seismic hazards impacts on the on-site. The thresholds of change for the intensity of an impact are defined as follows:

<u>Impact Intensity</u>	<u>Impact Description</u>
Negligible	The action would result in a changed vulnerability to seismic hazards, but the change would be so small that it would not be of any measurable or perceptible consequence.
Minor	The action would result in a changed vulnerability to seismic hazards, but the change would be small and localized and of little consequence.
Moderate	The action could result in a changed vulnerability to seismic hazards; the change would be measurable and of consequence.
Major	An action that would result in a noticeable changed vulnerability to seismic hazards; the change would be measurable and result in a severely adverse or major beneficial impact.

Duration:

Short-term – There are no short-term seismic hazard impacts.

Long-term – All seismic hazards impacts would be long-term.

Soils

All available information on soils potentially impacted in various areas of the parks was compiled. Where possible, map locations of sensitive soils were compared with locations of proposed developments and modifications of existing facilities. The thresholds of change for the intensity of an impact are defined as follows:

<u>Impact Intensity</u>	<u>Impact Description</u>
Negligible	Soils would not be affected or the effects to soils would be below or at the lower levels of detection. Any effects to soils would be slight.
Minor	The effects to soils would be detectable. Effects to soil area would be small. Mitigation may be needed to offset adverse effects and would be relatively simple to implement and likely be successful.
Moderate	The effect on soil would be readily apparent and result in a change to the soil

character over a relatively wide area. Mitigation measures would be necessary to offset adverse effects and likely be successful.

Major

The effect on soil would be readily apparent and substantially change the character of the soils over a large area in and out of the park. Mitigation measures to offset adverse effects would be needed, extensive, and their success could not be guaranteed.

Duration:

Short-term – Impacts to soil would last less than 3 years.

Long-term – Soils would take more than 3 years to recover.

Alternative 1: No Action

Analysis

Effects of Seismic Safety. Existing conditions at Aubell would not change. The project area would continue to be susceptible to earthquake ground shaking, particularly from the seismically active intersection of the North America, Pacific, and Gorda tectonic plates southwest of Redwood National and State Parks. Under the No Action Alternative, the result would be no adverse effect on geological resources and there are no known significant geological hazards at Aubell. Therefore, there would be a long-term, negligible impact associated with geological resources and geologic hazards.

Effects on Erosion and Slope Stability. Aubell is located on relatively gentle slopes and has not historically been subject to landslides or severe soil erosion. Slope stability or erosion would not be adversely affected at Aubell due to the No Action Alternative. Therefore, there would be a long-term, negligible impact associated with erosion and slope stability.

Summary of Alternative 1: No Action Alternative Impacts. The No Action Alternative would have a long-term, negligible impact associated with geological resources, geologic hazards, and soil.

Non-Impairment of Geologic, Geologic Hazard, and Soils

The No Action Alternative would have a long-term, negligible impact associated with geologic hazards, soil stability, and soil. Therefore, the Alternative would not impair geology or soil stability.

Alternative 2: On-Site Water (Proposed Action)

Analysis

Effects of Seismic Safety. The effects on seismic safety under the Proposed Action Alternative would be similar to those under the No Action Alternative.

Effects on Erosion and Slope Stability. The effects on erosion and slope stability under the Proposed Action Alternative would be similar to those under the No Action Alternative.

Summary of the Alternative 2: On-Site Water (Proposed Action) Impacts. The impacts under the Proposed Action Alternative would be similar to the No Action Alternative. Therefore the Proposed Action Alternative would have a long-term, negligible impact associated with geological resources, geologic hazards, and soils.

Non-Impairment of Geologic, Geologic Hazard, and Soils

The Proposed Action Alternative would have a long-term, negligible impact associated with geologic hazards, soil stability, and erosion. Therefore, the Alternative would not cause impairment to geology or soil stability.

Cumulative Impacts

The cumulative impacts on geological resources, geological hazards, and erosion are similar for No Action Alternative and Proposed Action Alternative. The past, present, and reasonably foreseeable actions propose substantial new developments within 2 miles of the Aubell area, including the Elk Valley Rancheria Martin Ranch Project, Solid Waste Transfer Station, and Elk Valley Road Improvements. In addition, a comprehensive trail plan is proposed for the parks, including a proposed trailhead and parking area at the Aubell area. Construction of these facilities could create short-term, minor, adverse impacts to soils due to grading or cut and fill operations. However, development and implementation of control measures to protect soils from erosion and prevent sediment and hazardous materials from entering water bodies, consistent with federal, state, and local standards and requirements, would reduce potential construction-related soil erosion.

Overall, the past, present, and reasonably foreseeable actions would have a regional, long-term, minor, adverse impact on geology, geologic hazards, and soils; however, neither the No Action Alternative or the Proposed Action Alternative would contribute to these impacts.

Hydrology, Floodplains, and Water Quality

Methodology and Regulations

Floodplains

Floodplains are defined by the NPS Floodplain Management Guideline as “the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, and including, at a minimum, that area subject to temporary inundation by a regulatory flood.” Executive Order 11988 (“Floodplain Management”) requires an examination of impacts to floodplains; of potential risk involved in placing facilities within floodplains, and protecting floodplain values. NPS has adopted the policy of preserving floodplain values and minimizing potentially hazardous conditions associated with flooding (NPS *Floodplain Management Guideline*, July 1, 1993). The planning team based the impact analysis and the conclusions for possible impacts to 100- and 500-year floodplains on the on-site inspection of known and potential 100- and 500-year floodplains within the park, review of existing literature and studies,

information provided by NPS experts and other agency experts, and park staff insights and professional judgment. The thresholds of change for the intensity of an impact are defined as follows:

<u>Impact Intensity</u>	<u>Impact Description</u>
Negligible	There would be no change in the ability of a floodplain to convey floodwaters, or its values and functions. Project would not contribute to the flood.
Minor	Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and local, although the changes would be only just measurable. Project would not contribute to the flood. No mitigation would be needed.
Moderate	Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and local. Project could contribute to the flood. The impact could be mitigated by modification of proposed facilities in floodplains.
Major	Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and, widespread. Project would contribute to the flood. The impact could be mitigated by modification of proposed facilities in floodplains.

Duration:

Short-term – Usually less than one year. Impacts would not be measurable or measurable only during the life of construction.

Long-term – Usually more than one year. Impacts would be measurable during and after project construction.

Water Quality

NPS *Management Policies 2006* state that NPS will “take all necessary actions to maintain or restore the quality of surface waters and ground waters within the parks consistent with the Clean Water Act and all other applicable federal, state, and local laws and regulations” (Section 4.6.3).

A water quality standard defines the water quality goals of a waterbody by designating uses to be made of the water, by setting minimum criteria to protect the uses, and by preventing degradation of water quality through antidegradation provisions. The antidegradation policy is only one portion of a water quality standard. Part of this policy (40 Code of Federal Regulations [CFR] 131.12(a)(2)) strives to maintain water quality at existing levels if it is already better than the minimum criteria. Antidegradation should not be interpreted to mean that “no degradation” can or will occur, as even in the most pristine waters, degradation may be allowed for certain pollutants as long as it is temporary and short term.

Other considerations in assessing the magnitude of water quality impacts are the effect on those resources dependent on a certain quality or condition of water. Sensitive aquatic organisms, submerged aquatic vegetation, riparian areas, and wetlands are affected by changes in water quality from direct and indirect sources.

Given the above water quality issues and methodology and assumptions, the following impact thresholds were established in order to describe the relative changes in water quality under the alternatives.

<u>Impact intensity</u>	<u>Impact Description</u>
Negligible	Impacts (chemical, physical, or biological effects) that would not be detectable, would be well below water quality standards or criteria, and would be within historical or desired water quality conditions.
Minor	Impacts (chemical, physical, or biological effects) would be detectable but would be well below water quality standards or criteria and within historical or desired water quality conditions.
Moderate	Impacts (chemical, physical, or biological effects) would be detectable but would be at or below water quality standards or criteria; however, historical baseline or desired water quality conditions would be temporarily altered.
Major	Impacts (chemical, physical, or biological effects) would be detectable and would be frequently altered from the historical baseline or desired water quality conditions; and/or chemical, physical, or biological water quality standards or criteria would temporarily be slightly and singularly exceeded.

Duration:

Short-term – Following treatment, recovery would take less than one year.

Long-term – Following treatment, recovery would take longer than one year.

Alternative 1: No Action

Analysis

Effects of Flooding. There is not a well-developed floodplain along the Elk Creek tributary at Aubell Ranch because the stream is intermittent and drains in a small watershed. This alternative will not add any additional fill to the stream or in any portion of the floodplain. Because the ability of the floodplain to convey floodwaters will not be adversely affected, there would be long-term negligible impact on the floodplain in the Aubell area.

Effects on Water Quality. The No Action Alternative would not adversely affect the existing water quality in the study area and would not change the existing water quality issues that are present. Therefore, the No Action Alternative would have negligible long-term impacts on water quality.

Summary of Impacts. The No Action Alternative would have long-term negligible impact on flooding and long-term negligible impacts water quality.

Non-Impairment of Hydrology, Floodplains and Water Quality

The No Action Alternative would have a long-term, negligible impact associated with hydrology, floodplains, and water quality. Therefore, the Alternative would not impair hydrology, floodplains, or water quality.

Alternative 2: On-Site Water (Proposed Action)

Analysis

Effects of Flooding. Waterline placement within the road prism and above the stream culvert would assure the continued ability of the unnamed tributary to Elk Creek to convey floodwaters. No other impacts to floodplains or drainages would be affected by the proposed action. There would be a long-term negligible impact in the ability of the unnamed tributary to convey floodwaters.

Effects on Water Quality. The effects on water quality under the Proposed Action Alternative would be similar to those under the No Action Alternative. Therefore there would be long-term negligible impact to water quality.

Summary of Impacts. The Proposed Action Alternative would have a long-term, negligible impact to flooding and long-term, negligible impact to water quality.

Non-Impairment of Hydrology, Floodplains and Water Quality

The Proposed Action Alternative would have a long-term, negligible impact associated with hydrology, floodplains, and water quality due to construction of the water supply. Therefore, the Alternative would not cause an impairment to park hydrology, floodplains, or water quality resources.

Cumulative Impacts

The No Action Alternative or the Proposed Action Alternative would not adversely contribute to the cumulative impacts. The cumulative impacts on flooding and water quality are similar for the No Action Alternative and the Proposed Action Alternative. The past, present, and reasonably foreseeable actions propose substantial new developments within 2 miles of the Aubell area, including the Elk Valley Rancheria Martin Ranch Project, Solid Waste Transfer Station, and Elk Valley Road Improvements. A comprehensive trail plan is proposed for the parks, which would include development of a trailhead at the Aubell area near the existing built facilities. Additionally, there will be a moderate long-term benefit from replacing the undersized metal pipe culvert beneath Aubell Lane with a concrete bottomless arch culvert that is sized to accommodate a 100 year storm event. The culvert is scheduled for construction when the maintenance facility is built.

Overall, the past, present, and reasonably foreseeable actions would have a regional, long-term, minor, benefit impact on flooding and water quality. The No Action Alternative or the Proposed Action Alternative in combination with the past, present, and reasonably foreseeable actions collectively would result in a local, long-term, moderate, benefit impact on flooding and water quality. However, neither the No

Action Alternative nor the Proposed Action Alternative would contribute measurably to cumulative impacts.

Wetlands

Methodology and Regulations

Wetlands

Wetlands are “lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface” (U.S. Fish and Wildlife Service 1979). Executive Order 1990 (“Protection of Wetlands”) requires an examination of impacts to wetlands; and protecting wetlands. NPS has adopted a “no net loss” of wetlands. The planning team based the impact analysis and the conclusions for possible impacts on wetlands on the on-site inspection of known and potential jurisdictional wetlands within the park, review of existing literature and studies, information provided by NPS experts and other agency experts, and park staff insights and professional judgment. The thresholds of change for the intensity of an impact are defined as follows:

<u>Impact Intensity</u>	<u>Impact Description</u>
Negligible	Wetlands would not be affected or the effects would be below or at the lower levels of detection.
Minor	The effects to wetlands would be detectable and relatively small in terms of area and the nature of the change. The action would affect a limited number of individuals of plant or wildlife species within the wetland.
Moderate	The effects to wetlands would be readily apparent over a relatively small area but the impact could be mitigated by restoring previously degraded wetlands. The action would have a measurable effect on plant or wildlife species within the wetland, but all species would remain indefinitely viable.
Major	The effects to wetlands would be readily apparent over a relatively large area. The action would have measurable consequences for the wetland area that could not be mitigated. Wetland species would be at risk of extirpation from the area.

Duration:

Short-term – Recovers in less than 3 years.

Long-term – Takes more than 3 years to recover.

Alternative 1: No Action

Analysis

Effects on Wetlands. Wetlands at the Midway site at Aubell are riparian areas associated with the Elk Creek tributary. These riparian wetlands have been affected by channelization of the stream, conversion of the original landforms, vegetation, and drainage patterns to agricultural pastures used for livestock grazing. This alternative would not adversely affect the wetland at Aubell area due to construction of water line

would not disturb riparian wetlands. Therefore, the No Action Alternative would have a long-term negligible impact to riparian wetlands.

Summary of Impacts. The overall effects on riparian wetlands from the No Action Alternative at Aubell would be a long-term negligible impact to riparian wetlands.

Non-Impairment of Wetlands

The No Action Alternative would have a long-term, negligible impact associated with riparian wetlands. Therefore, the Alternative would not impair wetland resources.

Alternative 2: On-Site Water (Proposed Action)

Analysis

Effects on Wetlands. Under the Proposed Action Alternative, the waterline would be placed within the road prism at the Midway site at Aubell. The well and water tank would not be placed near wetland areas at Aubell. Therefore, there would be a long-term negligible impact to riparian wetlands.

Summary of Impacts. The impacts under the Proposed Action Alternative would be similar to the No Action Alternative. Therefore, the overall effects on riparian wetlands from the Proposed Action Alternative at Aubell would be a long-term negligible impact to riparian wetlands.

Non-Impairment of Wetlands

The Proposed Action Alternative would have a long-term, negligible impact associated with riparian wetlands. Therefore, the Alternative would not cause impairment to park wetland resources.

Cumulative Impacts

The No Action Alternative and the Proposed Action Alternative would not contribute to the cumulative impacts on riparian wetlands. The past, present, and reasonably foreseeable actions propose substantial new developments within 2 miles of the Aubell area, including the Elk Valley Rancheria Martin Ranch Project, Solid Waste Transfer Station, and Elk Valley Road Improvements. A comprehensive trail plan is proposed for the parks, which would include development of a trailhead at the Aubell area near the existing built facilities. Additionally, the construction of the maintenance facility would provide minor to moderated long-term benefit to wetlands from installation of an arch culvert across the stream that would accommodate 100-year stream flows.

Overall, the past, present, and reasonably foreseeable actions would have a regional, long-term, minor, adverse impact on wetlands. The No Action Alternative or the Proposed Action Alternative in combination with the past, present, and reasonably foreseeable actions collectively would result in a local, short-term, negligible adverse impact on wetlands. However, neither the No Action Alternative nor the Proposed Action Alternative would contribute measurably to cumulative impacts.

Vegetation

Methodology and Regulations

All available information on vegetation and vegetative communities potentially impacted at the Aubell area was compiled. Predictions about short- and long-term site impacts were based on previous projects with similar vegetation and recent studies. The thresholds of change for the intensity of an impact are defined as follows:

<u>Impact Intensity</u>	<u>Impact Description</u>
Negligible	No native vegetation would be affected or some individual native plants could be affected as a result of the alternative, but there would be no effect on native species populations. The effects would be on a small scale and no species of special concern would be affected.
Minor	The alternative would affect some individual native plants and would also affect a relatively minor portion of that species' population. Mitigation to offset adverse effects, including special measures to avoid affecting species of special concern, could be required and would be effective.
Moderate	The alternative would affect some individual native plants and would also affect a sizeable segment of the species' population and over a relatively large area. Mitigation to offset adverse effects could be extensive, but would likely be successful. Some species of special concern could also be affected.
Major	The alternative would have a considerable effect on native plant populations, including species of special concern, and affect a relatively large area in and out of the park. Mitigation measures to offset the adverse effects would be required, extensive, and success of the mitigation measures would not be guaranteed.

Duration:

Short-term – Recovers in less than 3 growing seasons.

Long-term – Takes more than 3 growing seasons to recover.

Alternative 1: No Action

Analysis

Effects on Vegetation. Vegetation in the area that would be removed is primarily non-native pasture grasses that are common in the vicinity and region. There would be a short-term minor adverse effect on a portion of the small amount of vegetation along the road prism and a strip of area from where the waterline crosses Aubell from the Rancheria property line to Aubell Lane. No mature trees would be removed to install the water line. Following ground disturbance, low-growing native vegetation would recolonize the disturbed areas by the next growing season. Therefore, the local short-term impact would be minor and adverse and long-term impact would be negligible and adverse with the No Action Alternative.

Summary of Impacts. Under the No Action Alternative there would be a local short-term, minor, adverse impact and long-term, negligible, adverse impact on vegetation.

Non-Impairment of Vegetation

The No Action Alternative would have a short-term minor adverse impact due to construction and a long-term, negligible adverse impact to vegetation. Therefore, the Alternative would not impair park vegetation resources.

Alternative 2: On-Site Water (Proposed Action)

Analysis

Effects on Vegetation. Under the Proposed Action Alternative there would be a 40-foot section of pipe installed between the wellhead and the road, as well as access corridor improvements to the water tank, at the east end of the project. There would be minimal impacts to vegetation resources along Aubell Lane due to the waterline being placed in the road prism. The Proposed Action Alternative would disturb range vegetation and secondary growth alder forests. Douglas-fir, Sitka spruce and red alder less than 20 inches in diameter at breast height would be removed within a 60-foot diameter area around the water tank and along the margins of the access road to the tank where the water line would be installed. Most of the trees to be removed are alder and fir less than 10 inches in diameter and have regrown since the original forest was cut approximately 20 years ago. The access road along which the water line would be installed is an abandoned logging road. Following ground disturbance, low-growing native vegetation would recolonize the disturbed areas by the next growing season. The access road and area around the tank would be routinely brushed to provide a clear access for maintenance equipment. To reduce the potential for spreading plant diseases such as sudden oak death (SOD) or Port-Orford-cedar root disease, construction equipment would be cleaned prior to being used in the parks if the equipment has been used in areas under quarantine for SOD or where Port-Orford-cedar root disease is prevalent.

During construction activities, disturbance would be limited to the smallest area possible and revegetation would occur after construction. Therefore, the Proposed Action Alternative would have local, short-term, minor and long-term, negligible, impacts on vegetation in this area.

Summary of Impacts. The impacts under the Proposed Action Alternative would have local, short-term minor impacts during construction and long-term negligible impacts on vegetation.

Non-Impairment of Vegetation

The Proposed Action Alternative would have a short-term minor adverse impact due to construction and a long-term, negligible adverse impact to vegetation. Therefore, the Alternative would not cause impairment to park vegetation resources.

Cumulative Impacts

The No Action Alternative and the Proposed Action Alternative impacts are similar and either alternative would contribute a small increment to the Cumulative impacts. Cumulative effects on vegetation in the parks and the surrounding region are related to logging and associated road construction, and residential, commercial, industrial, agricultural, and transportation development and use. The most significant cumulative

effect on vegetation in the Redwood National and State Parks occurred prior to park establishment and expansion from the logging of 50,000 acres of original coniferous forest, mostly in the Redwood Creek watershed with additional logging in the Howland Hill area near Aubell Ranch. Park projects that remove vegetation include watershed restoration, maintenance of roads and trails, and restoration of the Bald Hills grasslands and oak woodlands through removal of encroaching Douglas-fir. NPS and CDPR have implemented a program to protect Port-Orford-cedar from a root disease that is affecting this economically and ecologically valuable species along the Smith River and in the Little Bald Hills area of the parks. Sudden Oak Death, caused by a pathogen closely related to the root disease agent, is also expected to adversely affect park vegetation but the degree of effect is not yet known.

Overall, the past, present, and reasonably foreseeable actions would have a regional, long-term, minor, adverse impact on vegetation. Either the No Action Alternative or the Proposed Action Alternative in combination with the past, present, and reasonably foreseeable actions collectively would result in a local, short-term minor adverse and long-term, negligible impact on vegetation. Therefore, the No Action Alternative or the Proposed Action Alternative would contribute a very small increment to the overall adverse cumulative impact.

Wildlife

Methodology and Regulations

Information on wildlife was taken from park documents and records. The Redwood National and State Parks natural resource management staff also provided wildlife information.

<u>Impact intensity</u>	<u>Impact Description</u>
Negligible	There would be no observable or measurable impacts to native species, their habitats, or the natural processes sustaining them. Impacts would be well within natural fluctuations.
Minor	Impacts would be detectable, but they would not be expected to be outside the natural range of variability of native species' populations, their habitats, or the natural processes sustaining them. Mitigation measures, if needed to offset adverse effects, would be simple and successful.
Moderate	Breeding animals of concern are present; animals are present during particularly vulnerable life-stages, such as migration or juvenile stages; mortality or interference with activities necessary for survival can be expected on an occasional basis, but is not expected to threaten the continued existence of the species in the parks unit. Impacts on native species, their habitats, or the natural processes sustaining them would be detectable, and they could be outside the natural range of variability. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.
Major	Impacts on native species, their habitats, or the natural processes sustaining them would be detectable, and they would be expected to be outside the natural range of

variability. Key ecosystem processes might be disrupted. Loss of habitat might affect the viability of at least some native species. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed.

Duration:

Short-term – Recovers in less than 1 year.

Long-term – Takes more than 1 year to recover.

Alternative 1: No Action

Analysis

Effects on Wildlife. The area has been previously disturbed by logging, agriculture, and industrial and residential development. Any wildlife occupying the area is tolerant of human disturbance. There would be no long-term observable or measurable impacts to the native species, their habitats, or the natural processes sustaining them. There would be short-term minor adverse impact to wildlife due to construction of the waterline and long-term negligible impact on wildlife.

Summary of Impacts. The No Action Alternative would have short-term minor adverse impact during construction and negligible long-term impact on wildlife.

Non-Impairment of Wildlife

The No Action Alternative would have a short-term, minor, adverse impact due to construction and long-term, negligible impact to wildlife. Therefore, the Alternative would not impair park wildlife resources.

Alternative 2: On-Site Water (Proposed Action)

Analysis

Effects on Wildlife. The area disturbed would consist of roadway prism, denuded rangeland, and second growth forest. No new barriers to wildlife corridors would result from the Proposed Action. Under the proposed action, there would be adverse effects on sedentary wildlife that live within or immediately adjacent to the excavation sites from noise during construction and any soil or ground-dwelling organisms that live within the project site would be displaced or destroyed. The effect on wildlife species that are not tolerant of human presence and that can move out of the area would be adverse, short-term and negligible to minor depending on the species and its tolerance of humans. For those individuals that are permanently displaced from their territories or are killed by equipment, the adverse effect is long-term or permanent and major. There is sufficient habitat in the vicinity of the project area for persistence of all wildlife species and there would be no long-term adverse effect on park populations of any wildlife species. Therefore, the overall adverse effect on wildlife from project-related excavation, well head or water tank installation would be negligible. The long-term effect on wildlife in the project area would be a negligible adverse impact on wildlife.

Summary of Impacts. The impacts under the Proposed Action would be short-term, minor, adverse, impact to wildlife due to construction and negligible, long-term, adverse effects on wildlife.

Non-Impairment of Wildlife

The Proposed Action Alternative would have a short-term, minor, adverse impact due to construction and long-term, negligible impact to wildlife due to noise from construction. Therefore, the Alternative would not cause impairment to park wildlife resources.

Cumulative Impacts

The No Action Alternative and the Proposed Action Alternative would have similar impacts and would contribute a very small increment to a short-term minor impact to wildlife due to construction. Cumulative adverse effects on wildlife in the parks relate primarily to activities outside the parks including mortality from vehicle collisions along Elk Valley Road and major highways; loss or conversion of habitat for agricultural, residential, commercial, and transportation development; and illegal poaching of elk and deer. These effects are negligible to significant, depending on the species and its degree of mobility and tolerance of human presence and disturbance. Other park actions that affect wildlife include watershed restoration, second growth forest management, control of non-native plants, and maintenance of facilities. The cumulative effects on wildlife from park actions in the short-term would be adverse, localized, and negligible. Park resource management projects have long-term minor to moderate benefits from restoration of habitat. The cumulative effects on wildlife from all human activity in the Elk Valley Road corridor and the vicinity would be adverse and would increase from minor to moderate as habitat is lost to development and the human population and associated disturbance increase.

Overall, the past, present, and reasonably foreseeable actions would have a regional, short- and long-term, minor, adverse impact on wildlife. Either the No Action Alternative or the Proposed Action Alternative in combination with the past, present, and reasonably foreseeable actions collectively would result in a short-term minor adverse and long-term, negligible, impact on wildlife. Therefore, the No Action Alternative or the Proposed Action Alternative would contribute a very small increment to the overall adverse cumulative impact.

Special-status Species

Methodology and Regulations

The Endangered Species Act (16 United States Coder [USC] 1531 et seq.) mandates that all federal agencies consider the potential effects of their actions on species listed as threatened or endangered. If NPS determines that an action may adversely affect a federally listed species, consultation with the U.S. Fish and Wildlife Service is required to ensure that the action will not jeopardize the species' continued existence or result in the destruction or adverse modification of critical habitat. *NPS Management Policies 2006* state that potential effects of agency actions will also be considered on state or locally listed species. Information on possible threatened, endangered, candidate

species and species of special concern was gathered from Redwood National and State Parks *Final General Management Plan / General Plan, Environmental Impact Statement / Environmental Impact Report*. Known impacts caused by development and human use were also considered. The thresholds of change for the intensity of an impact are defined as follows:

<u>Impact Intensity</u>	<u>Impact Description</u>
Negligible	The action could result in a change to a population or individuals of a species or designated critical habitat, but the change would be so small that it would not be of any measurable or perceptible consequence.
Minor	The action could result in a change to a population or individuals of a species or designated critical habitat. The change would be measurable but small and localized and of little consequence.
Moderate	The action would result in some change to a population or individuals of a species or designated critical habitat. The change would be measurable and of consequence.
Major	The action would result in a noticeable change to a population or individuals of a species or resource or designated critical habitat.

Duration:

Short-term – Recovers in less than 1 year for animals and within 1 growing season for plants.

Long-term – Takes more than 1 year to recover for animals and more than 1 growing season for plants.

Alternative 1: No Action

Analysis

Effects on Special-status Species. The No Action Alternative would not affect federally or state listed, proposed or candidate, rare, threatened or endangered plants or animals. Sensitive species associated with the riparian area and the stream would be protected by implementation of the Best Management Practices (BMPs) and the mitigation measures described under the terms and conditions listed in the biological opinion for the coho salmon and its critical habitat. Construction related activities would have adverse effects on special-status species due to exposure to noise and human disturbance. The No Action Alternative would have a negligible short- and long-term adverse impact on special-status species at Aubell.

Summary of Impacts. Overall, with the implementation of BMPs and mitigation measures, the No Action Alternative would result in short- and long-term, negligible, adverse impacts on special status species.

Non-Impairment of Special-Status Species

The No Action Alternative would have short- and long-term, negligible adverse impact on special-status species. Therefore, the Alternative would not impair special-status species.

Alternative 2: On-Site Water (Proposed Action)

Analysis

Effects on Special-status Species. The waterline and water tank would be located approximately 300 feet from an old growth redwood stand at Aubell. Old growth redwood is known nesting habitat for marbled murrelets, a federally listed threatened species. The nesting period for marbled murrelets begins on March 24th and runs through September 15th. Although this project would not remove any marbled murrelet habitat (old growth trees and forest), there is a potential for high construction noise (80-89db) associated with the project. Therefore, based on recent guidelines from U.S Fish and Wildlife Service to protect nesting marbled murrelets, construction within 825 feet of the old growth redwood (approximately 500 feet down the waterline from the tank) would not occur between March 24th and September 15th (Holm 2007).

Northern spotted owls are also a federally listed threatened species that occurs within the park. Although the trees to be removed for the placement of the water line and tank are too small to be considered suitable spotted owl habitat, there is the a potential for high construction noise (80-89db) associated with the project might cause nest abandonment and/or failure. However, the potential habitat around the planned Aubell facility has been surveyed according to protocols and no spotted owls have been detected. Additionally, the nearest known breeding spotted owls are more than four miles away from the project site. Therefore, construction at the Aubell site would not disturb any spotted owl nests (Holm 2007).

The coho salmon is a sensitive species associated with the riparian area at Aubell. Sensitive species associated with the riparian area and the stream would be protected by implementation of the Best Management Practices (BMPs) and the mitigation measures described under the terms and conditions listed in the biological opinion for the coho salmon and its critical habitat. Coho salmon would not be adversely affected by this project.

There are no northern spotted owls known to occupy the project area. Therefore, northern spotted owls would not be affected under the proposed action. Construction would be scheduled to avoid adverse impacts to nesting marbled murrelets; there would be no adverse effects to nesting murrelets under the proposed action. Coho salmon would not be adversely affected by construction of the proposed waterline, provided the terms and conditions of the Biological Opinion (151422SWR2003AR8948:BAD, dated October 27, 2005 are implemented during the construction of the waterline.

Summary of Impacts. Overall, with the implementation of BMPs and mitigation measures, the Proposed Action Alternative would result in short- and long-term, negligible adverse impacts on special status species. Construction related activities would have adverse effects on special-status species due to exposure to noise and human disturbance.

Non-Impairment of Special-Status Species

The Proposed Action Alternative would have short- and long-term, negligible adverse impact on special-status species due to construction. Therefore, the Alternative would not cause impairment to special-status species.

Cumulative Impacts

The No Action Alternative and the Proposed Action Alternative would have similar impacts and would not contribute to the cumulative impacts provided the terms and conditions of the Biological Opinion (151422SWR2003AR8948:BAD, dated October 27, 2005) are implemented during the construction of the waterline. Almost all activities in the parks affect sensitive species because the forests and streams in the parks are occupied by sensitive bird species and anadromous fish (coho) that are federally listed as threatened. On-going and planned projects and activities for which the NPS consults with either USFWS or NOAA Fisheries for potential effects on listed, proposed, and candidate species include watershed restoration; road, trail and facility maintenance and construction; non-native plant management; helicopter and off-road vehicle use. The NPS has been authorized incidental take of listed species, primarily northern spotted owls, marbled murrelets, and anadromous salmonids, by the USFWS and/or NOAA Fisheries for some of these activities. On-going NPS actions do not jeopardize the continued survival of any listed or proposed threatened or endangered species. Fire management through out the parks would have minor long-term benefits to sensitive species from reduction in fuel levels that reduce the potential for catastrophic wildfires. Management of second growth forests in the parks would have minor to moderate benefits as forests retain characteristics more typical of old growth forest and the habitat for forest-dwelling bird species improves.

Construction and operation of the proposed Elk Valley Rancheria casino and resort at the Martin Ranch at the intersection of Highway 101 and Humboldt Road has the potential to affect habitat for the western lily, a federally listed endangered plant, due to run-off into the marshes downslope, and northern spotted owls that might occupy the second growth forests in the parks on the southeastern edge of the casino development. Any potential effects to federally listed species would be mitigated as described in the August 2005 Draft Environmental Impact Statement, Elk Valley Rancheria Martin Ranch Fee-to-Trust Project.

Outside the parks, the primary activities that affect sensitive or listed threatened and endangered species are loss of habitat from logging, residential, industrial, and agricultural development; dams for power development, flood control, and water supply for domestic and agricultural activities; and residential, commercial, industrial, agricultural, and recreational development projects that reduce the quality of habitat or decrease the quantity of habitat. For anadromous fish, sport and commercial fishing also affect fish populations over both the short- and long-term. The cumulative effects on some species and their habitat are widespread, adverse, long-term, and significant, and have resulted in the listing of these species as threatened.

Overall, the past, present, and reasonably foreseeable actions would have a regional, short- and long-term, negligible, adverse impact on special-status species. Either the No Action Alternative or the Proposed Action Alternative in combination with the past, present, and reasonably foreseeable actions collectively would result in a short- and long-term, negligible, adverse impact on special-status species. The No Action Alternative or the Proposed Action Alternative would not contribute to the cumulative impacts.

Air Quality

Methodology and Regulations

The 1963 Clean Air Act, as amended (42 USC 7401 et seq.) requires federal land managers to protect park air quality while the 2006 NPS *Management Policies* address the need to analyze air quality during park planning.

The 1963 Clean Air Act, as amended, provides that the federal land manager has an affirmative responsibility to protect the park's air quality-related values (including visibility, plants, animals, soils, water quality, cultural and historic resources and objects, and visitor health) from adverse air pollution impacts. Section 118 of the 1963 Clean Air Act requires the parks to meet all federal, state, and local air pollution standards. Section 176(c) of the 1963 Clean Air Act requires all federal activities and projects to conform to state air quality implementation plans to attain and maintain national ambient air quality standards.

The *Management Policies* further state that NPS will assume an aggressive role in promoting and pursuing measures to protect air quality related values from the adverse impacts of air pollution. In cases of doubt as to the impacts of existing or potential air pollution on park resources, NPS "will err on the side of protecting air quality and related values for future generations."

The Organic Act and the *Management Policies* apply equally to all areas of the national park system, regardless of Clean Air Act designations. Therefore, NPS will protect resources at both class I and class II designated units. Furthermore, the NPS Organic Act and *Management Policies* provide additional protection beyond that afforded by the Clean Air Act's national ambient air quality standards alone because NPS has documented that specific park air quality related values can be adversely affected at levels below the national standards or by pollutants for which no standard exists.

Impacts to environmental resources and values include visibility and biological resources (specifically ozone effects on plants) that may be affected by airborne pollutants (ozone, nitrogen oxides, total hydrocarbons, particulate matter). Particulate matter and nitrogen oxide emissions are evaluated for visibility impairment. Volatile

organic compounds and nitrogen oxides are precursors to the formation of ozone precursors and are evaluated separately in lieu of ozone emissions.

To assess a level of impact on air quality related values from airborne pollutants, both the emissions of each pollutant related to the proposed activity and the background air quality must be evaluated and then considered according to the thresholds defined below.

<u>Impact intensity</u>	<u>Impact Description</u>
Negligible	Negligible impacts would not be detectable.
Minor	Minor impacts would be slightly detectable in close proximity to the source. Minor adverse impacts may include introduction of air pollutants into a local area with little or no preexisting direct emissions sources except for emissions transported from other areas. Minor adverse impacts are not expected to be linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects.
Moderate	Moderate impacts would be clearly detectable and could have an appreciable health effects, or would create objectionable odors affecting a substantial number of people.
Major	Major impacts would conflict with or obstruct implementation of the applicable air quality plan, violate any air quality standard, or contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations.

Duration:

Short Term – Impacts would persist only as long as construction takes place.

Long Term – Impacts would persist beyond construction.

Alternative 1: No Action

Effects on Air Quality. Installation of the waterline will occur concurrently with the construction associated with the RMFR project. Dust suppression equipment and clean water would be used to reduce excess airborne particulate from exposed soils in active construction areas. Under this alternative the impact to air quality would be short-term, negligible, adverse and negligible for the long-term.

Summary of Impacts. The No Action Alternative would have short-term, negligible, adverse and long-term, negligible impacts on air quality.

Non-Impairment of Air Quality

The No Action Alternative would have a short-term, negligible adverse impact and long-term, negligible impact on air quality. Therefore, the Alternative would not impair air quality related values.

Alternative 2: On-Site Water (Proposed Action)

Analysis

Effects on Air Quality. Implementation of the Proposed Action Alternative would occur concurrently with the construction associated with the RMFR project. Dust suppression equipment and clean water would be used to reduce excess airborne particulate from exposed soils in active construction areas. Therefore, the impacts to air quality are similar to the No Action Alternative. This alternative would contribute short-term, negligible, adverse impacts and long-term, negligible, impacts to air quality.

Summary of Impacts. The impacts under the Proposed Action Alternative would be similar to the No Action Alternative. The Proposed Action Alternative would have short-term, negligible, adverse and long-term, negligible impacts on air quality.

Non-Impairment of Air Quality

The Proposed Action Alternative would have a short-term, negligible adverse impact and long-term, negligible impact on air quality. Therefore, the Alternative would not cause impairment to air quality related values.

Cumulative Impacts

The cumulative impacts on air quality are similar for No Action Alternative and Proposed Action Alternative. Air quality in the parks and the region would continue to be very good to excellent over the long-term. Potential effects on air quality from planned fire ignitions are negligible to moderate. The North Coast Air Quality Management District coordinates planned ignitions in Humboldt, Del Norte, and Trinity Counties to minimize cumulative adverse smoke effects on sensitive areas (local communities and highways). The cumulative effect on air quality in the parks from prescribed fires conducted on adjacent private timber lands to reduce logging slash would be short-term, adverse, localized and could range from negligible to moderate depending on wind conditions and how close the prescribed fires are to park boundaries.

Overall, the past, present, and reasonably foreseeable actions would have a regional, short- and long-term, negligible to moderate, adverse impact on air quality. Either the No Action Alternative or the Proposed Action Alternative in combination with the past, present, and reasonably foreseeable actions collectively would result in a local short- and long-term, negligible, adverse impact on air quality. The No Action Alternative or the Proposed Action Alternative would not contribute to the cumulative impacts.

Natural Soundscapes

Methodology and Regulations

NPS *Management Policies 2006*, states that NPS will strive to preserve the natural quiet and natural sounds associated with the physical and biological resources of parks.

NPS policy requires the restoration of degraded soundscapes to the natural condition whenever possible, and the protection of natural soundscapes from degradation due to noise (undesirable human-caused sound) (*Management Policies 2006*, sec. 4.9). NPS is specifically directed to “take action to prevent or minimize all noise that, through frequency, magnitude, or duration, adversely affects the natural soundscape or other park resources or values, or that exceeds levels that have been identified as being acceptable to, or appropriate for, visitor uses at the sites being monitored” (*Management Policies 2006*, sec. 4.9). Overriding all of this is the fundamental purpose of the national park system, established in law (e.g., 16 USC 1 et seq.), which is to conserve park resources and values (*Management Policies 2006*, sec. 1.4.3). NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values (*Management Policies 2006*, sec 1.4.3).

Noise can adversely affect park resources by modifying or intruding upon the natural soundscape, and can also indirectly impact resources by interfering with sounds important for animal communication, navigation, mating, nurturing, predation, and foraging functions. Noise can also adversely impact park visitor experiences by intruding upon or disrupting experiences of solitude, serenity, tranquility, contemplation, or a completely natural or historical environment.

The methodology used to assess impacts on natural soundscapes in this document is consistent with NPS *Management Policies 2006* and *Director’s Order #47: Soundscape Preservation and Noise Management*.

Context, duration, and intensity together determine the level of impact for an activity. It is usually necessary to evaluate all three factors together to determine the level of impact on natural soundscapes. In some cases an analysis of one or more factors may indicate one impact level, while an analysis of another factor may indicate a different impact level, according to the criteria below. In such cases, best professional judgment based on a documented rationale must be used to determine which impact level best applies to the situation being evaluated.

- National literature was used to estimate the average decibel levels of construction activity.
- Areas of use by visitors were identified in relation to where the activity is proposed.

Impact intensity	Impact Description
Negligible	Effects to natural sound environment would be at or below the level of detection and such changes would be so slight that they would not be of any measurable or perceptible consequence to the visitor experience or to biological resources.
Minor	Effects to the natural sound environment would be detectable, although the effects would be localized, and would be small and of little consequence to the visitor experience or to biological resources. Mitigation measures, if needed to offset adverse effects, would be simple and successful.
Moderate	Effects to the natural sound environment would be readily detectable, localized, with consequences at the regional or population level. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.
Major	Effects to the natural sound environment would be obvious and have substantial consequences to the visitor experience or to biological resources in the region. Extensive mitigation measures would be needed to offset any adverse effects and success would not be guaranteed.

Duration:

Short-term – Occurs only during the construction period.

Long-term – Occurs even after the construction period.

Alternative 1: No Action

Analysis

Effects on Natural Soundscapes. Operation of construction equipment to install the waterline would increase the ambient noise levels in the property area, and such increases would be readily detectable. The waterline will be installed concurrently with the construction associated with the RMFR project. The increase in project area noise levels would be proximate to sensitive receptors, including adjacent residences and nearby park visitors. Mitigation and BMPs will be employed to mitigate adverse impacts on natural soundscapes. The No Action Alternative would have a minor, short-term, adverse, impact on the natural soundscape due to construction and an overall negligible, long-term, impact.

Summary of Impacts. Impacts would have a minor, short-term, adverse impact on the natural soundscape due to construction and an overall negligible, long-term impact.

Non-Impairment of Natural Soundscapes

The No Action Alternative would have a short-term, minor, adverse and a long-term, negligible impact to the natural soundscape. Therefore, the Alternative would not impair park natural soundscapes.

Alternative 2: On-Site Water (Proposed Action)

Analysis

Effects on Natural Soundscapes. Existing noise sources would continue to be prevalent at levels similar to those currently experienced. The noise associated with the new water supply operation would not be noticeable, as it would blend into the existing noise levels. Construction of the water supply would occur concurrently with construction activities associated with the RMFR project. Therefore, there would be minor, short-term, adverse and long-term negligible impact to the soundscape.

Summary of Impacts. The impacts under the Proposed Action Alternative would be short-term, minor, adverse impact to the soundscape due to construction and over the long-term impacts would be negligible.

Non-Impairment of Natural Soundscapes

The Proposed Action Alternative would have a short-term, minor, adverse and a long-term, negligible impact to the natural soundscape due to construction. Therefore, the Alternative would not cause impairment to the natural soundscape.

Cumulative Impacts

The cumulative impacts on natural soundscape are similar for No Action Alternative and the Proposed Action Alternative. Ongoing operation of the past, present, and reasonably foreseeable actions would result in new development, new human uses, and new vehicle trips in the vicinity of Crescent City resulting in a regional, long-term, minor, adverse impact on the natural soundscape environment. The Alternative 1: No Action would cause negligible, short-term, adverse impacts.

Overall, the past, present, and reasonably foreseeable actions would have a regional, long-term, minor, adverse impact on natural soundscape. Either the No Action Alternative or the Proposed Action Alternative in combination with the past, present, and reasonably foreseeable actions collectively would result in a local short- and long-term, negligible, adverse impact on natural soundscape. The No Action Alternative or the Proposed Action Alternative in the short-term would contribute a very small increment to the cumulative impacts.

Cultural Resources

Methodology and Regulations

Archeological Resources

Impact intensity	Impact Description
Negligible	Impact is at the lowest levels of detection with neither adverse nor beneficial consequences. The determination of effect for Section 106 of the National Historic Preservation Act would be <i>no adverse</i>

<u>Impact intensity</u>	<u>Impact Description</u>
	<i>effect.</i>
Minor	<p>Adverse impact – disturbance of a site(s) results in little, if any, loss of integrity. The determination of effect for Section 106 of the National Historic Preservation Act would be <i>no adverse effect</i>.</p> <p>Beneficial impact – maintenance and preservation of a site(s). The determination of effect for Section 106 of the National Historic Preservation Act would be <i>no adverse effect</i>.</p>
Moderate	<p>Adverse impact – disturbance of a site(s) results in loss of integrity. The determination of effect for Section 106 of the National Historic Preservation Act would be <i>adverse effect</i>. A memorandum of agreement (MOA) is executed among NPS and applicable state or tribal historic preservation officer and, if necessary, the Advisory Council on Historic Preservation in accordance with 36 CFR 800.6(b). Measures identified in the MOA to minimize or mitigate adverse impacts reduce the intensity of impact under NEPA from major to moderate.</p> <p>Beneficial impact – stabilization of a site(s). The determination of effect for Section 106 of the National Historic Preservation Act would be <i>no adverse effect</i>.</p>
Major	<p>Adverse impact – disturbance of a site(s) results in loss of integrity. The determination of effect for Section 106 of the National Historic Preservation Act would be <i>adverse effect</i>. Measures to minimize or mitigate adverse impacts cannot be agreed upon and NPS and applicable state or tribal historic preservation officer and/or Advisory Council are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b).</p> <p>Beneficial impact – active intervention to preserve a site(s). The determination of effect for Section 106 of the National Historic Preservation Act would be <i>no adverse effect</i>.</p>

Duration:

Short-term – There are no short-term impacts to archeological resources.

Long-term – All impacts to archeological resources would be long-term and permanent.

Historic Structures

<u>Impact intensity</u>	<u>Impact Description</u>
Negligible	Impact is at the lowest levels of detection with neither adverse nor beneficial consequences. The determination of effect for Section 106 of the National Historic Preservation Act would be <i>no adverse effect</i> .
Minor	<p>Adverse impact – alteration of a feature(s) would not diminish the overall integrity of the resource. The determination of effect for Section 106 of the National Historic Preservation Act would be <i>no adverse effect</i>.</p> <p>Beneficial impact – stabilization/preservation of features in accordance with the <i>Secretary of the Interior's Standards for the</i></p>

<u>Impact intensity</u>	<u>Impact Description</u>
	<i>Treatment of historic properties.</i> The determination of effect for Section 106 of the National Historic Preservation Act would be <i>no adverse effect</i> .
Moderate	Adverse impact – alteration of feature(s) would diminish the overall integrity of the resource. The determination of effect Section 106 of the National Historic Preservation Act would be <i>adverse effect</i> . An MOA is executed among NPS and applicable state or tribal historic preservation officer and, if necessary, the Advisory Council on Historic Preservation in accordance with 36 CFR 800.6(b). Measures identified in the MOA to minimize or mitigate adverse impacts reduce the intensity of impact under NEPA from major to moderate. Beneficial impact – rehabilitation of a structure in accordance with the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i> . The determination of effect Section 106 of the National Historic Preservation Act would be <i>no adverse effect</i> .
Major	Adverse impact – alteration of a feature(s) would diminish the overall integrity of the resource. The determination of effect for Section 106 of the National Historic Preservation Act would be <i>adverse effect</i> . Measures to minimize or mitigate adverse impacts cannot be agreed upon and NPS and applicable state or tribal historic preservation officer and/or Advisory Council are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b). Beneficial impact – restoration of a structure in accordance with the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i> . The determination of effect for Section 106 of the National Historic Preservation Act would be <i>no adverse effect</i> .

Duration:

Short-term – There are no short-term impacts to historic resources.

Long-term – All impacts to historic resources would be long-term and permanent.

Ethnographic Resources

<u>Impact intensity</u>	<u>Impact Description</u>
Negligible	Impact(s) would be barely perceptible and would neither alter resource conditions, such as traditional access or site preservation, nor the relationship between the resource and the affiliated group's body of practices and beliefs. The determination of effect on Traditional Cultural Properties (ethnographic resources eligible to be listed in the National Register of Historic Places) for Section 106 of the National Historic Preservation Act would be <i>no adverse effect</i> .
Minor	Adverse impact – impact(s) would be slight but noticeable but would neither appreciably alter resource conditions, such as traditional access or site preservation, nor the relationship between the resource and the affiliated group's body of practices and beliefs. The determination of effect on Traditional Cultural Properties (ethnographic resources eligible to be listed in the National Register of Historic

<u>Impact intensity</u>	<u>Impact Description</u>
	<p>Places) for Section 106 of the National Historic Preservation Act would be <i>no adverse effect</i>.</p> <p>Beneficial impact – would allow access to and/or accommodate a group’s traditional practices or beliefs. The determination of effect on Traditional Cultural Properties for Section 106 of the National Historic Preservation Act would be <i>no adverse effect</i>.</p>
Moderate	<p>Adverse impact – impact(s) would be apparent and would alter resource conditions. Something would interfere with traditional access, site preservation, or the relationship between the resource and the affiliated group’s practices and beliefs, even though the group’s practices and beliefs would survive. The determination of effect on Traditional Cultural Properties (ethnographic resources eligible to be listed in the National Register of Historic Places) for Section 106 of the National Historic Preservation Act would be <i>adverse effect</i>. A MOA is executed among NPS and applicable state or tribal historic preservation officer and, if necessary, the Advisory Council on Historic Preservation in accordance with 36 CFR 800.6(b).</p> <p>Beneficial impact – would facilitate traditional access and/or accommodate a group’s practices or beliefs. The determination of effect on Traditional Cultural Properties for Section 106 of the National Historic Preservation Act would be <i>no adverse effect</i>.</p>
Major	<p>Adverse impact — impact(s) would alter resource conditions. Something would block or greatly affect traditional access, site preservation, or the relationship between the resource and the affiliated group’s body of practices and beliefs, to the extent that the survival of a group’s practices and/or beliefs would be jeopardized. The determination of effect on Traditional Cultural Properties (ethnographic resources eligible to be listed in the National Register of Historic Places) for Section 106 of the National Historic Preservation Act would be <i>adverse effect</i>.</p> <p>Beneficial impact – would encourage traditional access and/or accommodate a group’s practices or beliefs. The determination of effect on Traditional Cultural Properties for Section 106 of the National Historic Preservation Act would be <i>no adverse effect</i>.</p>

Duration:

Short-term – Effects lasting for the duration of the project action.

Long-term – Effects lasting longer than the duration of the project action.

Alternative 1: No Action

Analysis

Effects on Archeological, Historical, or Ethnographic resources. No historic resources listed or eligible for listing on the National Register of Historic Places would be adversely affected by ground disturbance for construction of the waterline from the Rancheria property line to the Midway site at Aubell. If during construction of the waterline cultural resources were discovered, work would stop and coordination with

appropriate regulatory agencies would occur prior to resuming construction activities. The No Action Alternative would have a short-term, negligible, adverse impacts and long-term, negligible on cultural resources.

Summary of Impacts. The impacts under the No Action Alternative would have short-term, negligible, adverse impacts and long-term, negligible on cultural resources.

Non-Impairment of Cultural Resources

The No Action Alternative would have a short-term, negligible, adverse and long-term, negligible impact on cultural resources. Therefore, the Alternative would not impair cultural resources.

Alternative 2: On-Site Water (Proposed Action)

Analysis

Effects on Archeological, Historical, or Ethnographic resources. No historic resources listed or eligible for listing on the National Register of Historic Places would be adversely affected by ground disturbance for construction of the waterline, well, and water tank for the Aubell maintenance facility. As stated in the No Action Alternative, if during construction of the waterline cultural resources were discovered, work would stop and coordination with appropriate regulatory agencies would occur prior to resuming construction activities. The Proposed Action Alternative would have a short-term, negligible, adverse impacts and long-term, negligible on cultural resources.

Summary of Impacts. The cultural resource impacts under the Proposed Action Alternative would have a short-term, negligible, adverse impacts and long-term, negligible on cultural resources.

Non-Impairment of Cultural Resources

The Proposed Action Alternative would have a short-term, negligible, adverse and long-term, negligible impact on cultural resources. Therefore, the Alternative would not cause impairment to cultural resources.

Cumulative Impacts

The cumulative impacts for archeological, historical, or ethnographic resources are similar for No Action Alternative and Proposed Action Alternative. Other on-going and proposed activities in the parks include fire management, watershed restoration, management of second growth forests and non-native plants, and maintenance and construction of trails and other facilities. The cultural sensitivity of the coniferous forest where watershed restoration and second growth forest management would occur is very low because these areas were logged or affected by road construction, which very likely damaged or destroyed any cultural resources originally present. Invasive non-native plants occur primarily in areas affected by recent human disturbance. Cultural resources in these areas are protected by avoiding or minimizing ground disturbance.

Recent archeological investigations in Jedediah Smith Redwoods State Park along the Smith River near Hiouchi indicate that the area possesses significant cultural resources that have been adversely affected by residential, commercial, and park developments. Historic structures throughout the park are protected from wildfire with fire lines constructed by hand immediately adjacent to the structures. Cultural resource surveys are conducted prior to any work involving ground disturbance. The NPS consults with affiliated American Indian groups and the SHPO/YTHPO as required by the implementing regulations of the National Historic Preservation Act (36 CFR 800) on all projects that have the potential to affect resources that are eligible for or are listed on the National Register of Historic Places.

The No Action Alternative or the Proposed Action Alternative would not adversely contribute to the cumulative impacts.

Scenic Resources

Methodology and Regulations

<u>Impact intensity</u>	<u>Impact Description</u>
Negligible	Effects to the visual quality of the landscape would be at or below the level of detection; changes would be so slight that they would not be of any measurable or perceptible consequence to the visitor experience.
Minor	Effects to the visual quality of the landscape would be detectable, localized, and would be small and of little consequence to the visitor experience. Mitigation measures, if needed to offset adverse effects, would be simple and successful.
Moderate	Effects to the visual quality of the landscape would be readily detectable, localized, with consequences at the regional level. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.
Major	Effects to the visual quality of the landscape would be obvious, with substantial consequences to the visitor experience in the region. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed.

Duration:

Short-term – Occurs only during the construction period.

Long-term – Effects continue after the construction period.

Alternative 1: No Action

Analysis

Effects on Scenic Resources. The Aubell area would continue to be visually characterized as an agrarian working landscape, with grassy fields and a localized development of ranch structures. The pastoral setting of the area would continue to feature CDPR

maintenance operations and ranger activities. Visual quality at Aubell would be adversely affected in the short term by waterline construction equipment and materials. The effect on visual quality from the No Action Alternative at Aubell would result in a short-term, minor, adverse and long-term, negligible impact to scenic resources.

Summary of Impacts. The No Action Alternative would result in a short-term, minor, adverse impact during construction and long-term, negligible impact to scenic resources.

Non-Impairment of Scenic Resources

The No Action Alternative would have short-term, minor, adverse and long-term, negligible impact on scenic resources. Therefore, the Alternative would not impair scenic resources.

Alternative 2: On-Site Water (Proposed Action)

Analysis

Effects on Scenic Resources. The effects on scenic resources under this alternative would be similar to those under the No Action Alternative with the exception of the addition of a wellhead building and water tank. The wellhead building would be constructed in a similar style as the new maintenance facility structures located at Aubell and it would be located at the western end of the Aubell site, near Elk Valley Road and Aubell Lane. The new water storage tank access corridor would add a new visual component to the view shed, but the water tank would be screened by existing secondary growth alder forests treated and sited in such a way to maximize the potential to blend into the surrounding environment. These effects would result in a long-term, minor, adverse impact to scenic resources.

Summary of Impacts. The Proposed Action Alternative would result in a short-term minor adverse impact during construction and long-term, minor, adverse impact on scenic resources due to visual intrusions associated with the new well head building and new water tank access corridor.

Non-Impairment of Scenic Resources

The Proposed Action Alternative would have short- and long-term, minor, adverse impact on scenic resources. Therefore, the Alternative would not cause impairment to scenic resources.

Cumulative Impacts

The cumulative impacts on scenic resources are similar for No Action Alternative and the Proposed Action Alternative. The past, present, and reasonable foreseeable actions propose substantial new developments within 2 miles of the Aubell area, including the Elk Valley Rancheria Martin Ranch Project, Solid Waste Transfer Station, and Elk Valley Road improvements. On a regional level, these new developments on the outskirts of Crescent City would modify the rural character of the area. Although these

areas of Crescent City are more rural and agrarian in nature, they are proximate to existing developed areas of Crescent City and would not be out of visual context with the area's setting. Construction activities associated with the proposed past, present and reasonably foreseeable actions would introduce visual intrusions in the area associated with construction traffic, fencing, staging areas, etc. The construction activities and establishment of new development in a predominantly rural area of Crescent City would have a regional, long-term, moderated, adverse impact on scenic resources. Implementation of the park's trail plan would provide new scenic viewing opportunities for park visitors, including a new trailhead planned for the Aubell area.

Overall, the past, present, and reasonably foreseeable actions would have a regional, long-term, minor, adverse impact on scenic resources. The adverse effect of new development in a predominantly rural area of Crescent City would be partially offset by the beneficial impact of new visitor opportunities for scenic views for the implementations of new trails. The No Action Alternative or the Proposed Action Alternative would contribute a very small increment in the short-term to the overall adverse cumulative impact. Over the long-term, the No Action Alternative would not contribute to cumulative impacts and the Proposed Action Alternative would contribute a very small increment to cumulative impacts.

Park Operations and Facilities

Methodology and Regulations

Park operations, for the purpose of this analysis, refers to the quality and effectiveness of the infrastructure, and the ability to maintain the infrastructure, used in the operation of the parks in order to adequately protect and preserve vital resources and provide for an effective visitor experience. This includes an analysis of the condition and usefulness of the facilities used to support the operations of the park.

The impact analysis is based on the current description of park operations presented in the Affected Environment section of this document.

<u>Impact intensity</u>	<u>Impact Description</u>
Negligible	Park operations would not be affected, or the effects would be at low levels of detection and would not have an appreciable effect on park operations.
Minor	The effect would be detectable and would be of a magnitude that would not have an appreciable effect on park operations. If mitigation was needed to offset adverse effects, it would be simple and likely successful.
Moderate	The effects would be readily apparent and result in a substantial change in park operations in a manner noticeable to staff and the public. Mitigation measures would be necessary to offset adverse

effects and would likely be successful.

Major

The effects would be readily apparent, result in a substantial change in park operation in a manner noticeable to staff and the public, and be markedly different from existing operations. Mitigation measures to offset adverse effects would be needed, extensive, and success could not be guaranteed.

Duration:

Short-term – Effects lasting for the duration of the treatment action.

Long-term – Effects lasting longer than the duration of the treatment action.

Alternative 1: No Action

Analysis

Effects on Park Operations and Facilities. The No Action Alternative would supply water to the new Redwood maintenance facility, via City water, improving conditions under which parks staff work on a daily basis. A waterline would connect to a waterline at the Rancheria property line on the southern end of Aubell. The ability to provide water needs for the new Redwood maintenance facility would equate to a long-term minor beneficial impact to park operations and facilities.

Summary Impacts. Operation of park maintenance functions would have a long-term, minor, beneficial effect on the quality and effectiveness of park operations.

Alternative 2: On-Site Water (Proposed Action)

Analysis

Effects on Park Operations and Facilities. The Proposed Action Alternative would supply water to the new Redwoods maintenance facility via a water well and water storage tank, improving conditions under which parks staff work on a daily basis. The water system would be maintained by park personnel. These effects equate to a long-term minor beneficial impact to park operations and facilities.

Summary Impacts. The impacts under the Proposed Action Alternative functions would have a long-term, minor, beneficial effect on the quality and effectiveness of park operations.

Cumulative Impacts

The cumulative impacts on park operations and facilities are similar for No Action Alternative and the Proposed Action Alternative. Past, present, and reasonably foreseeable actions, collectively, would result in a regional, long-term, minor, beneficial impact on park operations. Implementation of the park's trail plan, including the proposed trailhead at the Aubell area, would provide new recreational opportunities for park visitors, but also new maintenance responsibilities for the park. The expanded trail system would have a regional long-term, negligible, adverse impact on park operations. The trail system would negligibly affect the park's ability to maintain existing park

infrastructure and facilities and adequately protect park resources and provide for an effective visitor experience.

Overall, the past, present, and reasonably foreseeable actions would have a regional, long-term, minor, beneficial impact on park operations and facilities. Either the No Action Alternative or the Proposed Action Alternative would reduce some of the adverse effects because the alternatives would provide the new maintenance facility with a reliable and sufficient water source. The No Action Alternative or the Proposed Action Alternative would contribute a very small increment to the overall beneficial cumulative impact.

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5 Coordination and Consultation

The NPS and CDPR consulted with the U.S. Fish and Wildlife Service, NOAA Fisheries (National Marine Fisheries Service), and the California State Historic Preservation Officer for potential effects on natural and cultural resources that might be affected by this project. The results of these consultations are described earlier in the document. The NPS also consulted with affiliated American Indian tribes including the Elk Valley Rancheria, the Tolowa Nation, and the Smith River Rancheria regarding potential effects on cultural resources in the project area. A complete list of agencies, organizations, or individuals that were contacted for information regarding this project or with whom the NPS and CDPR discussed the water supply project is included in the list of stakeholders that received this document.

List of Agencies, Organizations, Interested Parties, and Businesses that Received this Document

Local, County, State and Federal Agencies:

Dennis Burns, Mayor, Crescent City CA
Eli Naffah, City Manager, Crescent City CA
David Weeks, Chairman, Bertsch Ocean View Community Services District
Dave Wells, Chairperson, Del Norte County Board of Supervisors
Ernie Perry, Director, Del Norte County Community Development Department
Carol Gaubatz, Program Analyst, Native American Heritage Commission
Albert Wellman, Water Resource Control Engineer, NCRWQCB
Paul Kieran, NCRWQCB
Leslie Wolf, U.S. Department of Commerce, NOAA Fisheries
Carol Heidsick, Regulatory Branch, USACE
Robin Hamlin, USFWS

Affiliated Tribes:

Dale Miller, Chairperson, Elk Valley Rancheria
Ray Martell, EPA Coordinator, Elk Valley Rancheria
Mr. John Greene, Elk Valley Rancheria Culture Committee
Janice Bowen, Chairperson, Tolowa Nation
Charlene Storr, Council Member, Tolowa Nation
Kara Miller, Chairperson, Smith River Rancheria
Brock Richards, EPA Assistant, Smith River Rancheria
Brad Cass, EPA Coordinator, Smith River Rancheria

Agencies/Organizations

Organizations:

Friends of Del Norte
Crescent City/Chambers of Commerce/Business Development
Del Norte Chamber of Commerce
Klamath Chamber of Commerce
Chuck & Cindy Schaumburg
Del Norte Economic Development Corporation
Dan Burgess Rural Human Services, Coastal Watershed Improvement Program

Individuals and Affected Parties:

Law Office of Ferman W. Sims, JD	Bob & Ieda Lowder
Mr. and Mrs. Richard Buntings	Rick & Nancy Moore
Inez Castor	Lacey and Brandon Moore
Henry Cole	Jennifer Moore
Sally Durham	Jill Munger
Elizabeth Green	Anthony & Michelle Nunes
Elizabeth Freeman	Dennis Sutton
Jeff Hutchins	Teryl Wakeman
Jeanne Johnson	Grady Wilson

Sharon Loughry	
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Libraries and Media:

Del Norte County Library
Humboldt County Public Library
Humboldt State University Library
Del Norte Daily Triplicate

List of Preparers, Consultants, and Planning Team Members

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Steve Chaney	Superintendent
Ray Cozby	Facilities Management
Baker Holden III	Fish Biologist
Gregory Holm	Wildlife Biologist
Aida Parkinson	Environmental Specialist
Michael Peterson	Archeologist
<i>National Park Service, Denver Service Center</i>	
Ric Alesch	Project Manager
Paul Wharry	Natural Resources
<i>California Department of Parks and Recreation Redwood National and State Parks</i>	
Bruce Lynn	Superintendent
Jeff Bomke	Facilities Management
Jay Harris	Senior Resource Ecologist
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Appendix A

Past, Present, and Reasonably Foreseeable Actions

Agency Name: Bureau of Indian Affairs and Elk Valley Rancheria

Project Name: **Elk Valley Rancheria Martin Ranch Project**

Description: The Bureau of Indian Affairs and Elk Valley Rancheria propose to develop a new destination resort on the approximately 203-acre Martin Ranch property located in Crescent City near the intersection of Highway 101 and Humboldt Road, approximately 2 miles south of the Aubell area. The Martin Ranch property (currently owned in fee title) would be placed into federal trust status for the Elk Valley Rancheria Tribe. The proposed project would include developing a 40,000-square foot casino, 20,000-square foot conference center, and 156-room hotel. The Martin Ranch Project would include the development of approximately 1,120 parking spaces to support the facilities.

Agency Name: Del Norte County

Project Name: **Solid Waste Transfer Station**

Description: Del Norte County proposes to develop a new 12,500 square foot solid waste transfer station at Elk Valley Road and State Street south of Howland Hill Road, approximately 1.3 miles from the Aubell area. The transfer station would be designed to handle 200 tons of solid waste and recyclable materials per day, with a peak capacity of 300 tons per day. Current solid waste generation at the county landfill is approximately 60 tons per day. The solid waste transfer station would generate approximately 220 vehicle trips on the average workday. Existing truck traffic (approximately 3 per day) that transport wood chips from Medford to the Hambro Forest Products factory near Crescent City would haul the solid waste to the landfill in Medford.

Agency Name: Del Norte County

Project Name: **Elk Valley Road Improvements**

Description: Approximately a half-mile south of the intersection of Elk Valley Road and Aubell Lane, Del Norte County proposes to widen and reconstruct Elk Valley Road between Howland Hill Road and Highway 101. The county would

add a middle turn lane to this road segment, as well as pedestrian/bike lanes on both sides of Elk Valley Road.

Agency Name: NPS and CDPR

Project Name: **Redwood National and State Parks Trail Plan**

Description: NPS and CDPR are developing a comprehensive trail plan for Redwood National and State Parks consistent with the guidance in the parks' *General Management Plan/General Plan*. The trail plan would guide the development of an expanded trail system for the parks. The trail plan would be consistent with the desired resource conditions and visitor experiences of the appropriate management zones identified in the parks' *General Management Plan/General Plan*. The *General Management Plan / General Plan* calls for the establishment of a trailhead on the Aubell property for trail access into the west side of Jedediah Smith Redwoods State Park. The proposed trailhead at the Aubell area would be included in the comprehensive trail plan, and would include a 25-car parking lot

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As the nation's principal conservation agency, the Department of the Interior has the responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historic places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. Administration.