

DRAFT

**INITIAL STUDY
MITIGATED NEGATIVE DECLARATION**

**INGLENOOK FEN – TEN MILE DUNES NATURAL PRESERVE
MACKERRICHER STATE PARK
DUNE REHABILITATION PROJECT**



May 4, 2012



State of California
California State Parks

MITIGATED NEGATIVE DECLARATION

PROJECT: **MACKERRICHER STATE PARK DUNE REHABILITATION PROJECT**

LEAD AGENCY: California State Parks

AVAILABILITY OF DOCUMENTS: The Initial Study for this Mitigated Negative Declaration is available for review at:

- Mendocino District Headquarters
California State Parks
Russian Gulch State Park
12301 North Highway 1
Mendocino, California 95460
- Mendocino County Library, Fort Bragg Branch
499 Laurel Street
Fort Bragg, California 95437
- Northern Service Center
California State Parks
One Capital Mall, Suite 410
Sacramento, California 95814
- California State Parks Internet Site
http://www.parks.ca.gov/default.asp?page_id=980

PROJECT DESCRIPTION:

California State Parks (CSP) proposes to restore ecosystem processes that are crucial to the viability of endangered species and their habitats in the Inglenook Fen-Ten Mile Dunes Natural Preserve (Preserve) by removing up to 2.7 miles (4.3 km) of asphalt road and portions of or the entire underlying rock base in foredune habitat, removing up to three culverts and restoring the stream channel, and treating approximately 60 acres (24.3 hectares) of European beachgrass and other nonnative weeds. Mitigation measures are incorporated to assure that restoration and enhancements would not result in significant adverse effects.

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

Renee Pasquinelli, Senior Environmental Scientist
California State Parks
Mendocino District
12301 North Highway 1 – Box 1
Mendocino, CA 95460

Submissions must be in writing and postmarked or received by fax or e-mail no later than [June 8, 2012](#). The original of any faxed document must be received by regular mail within ten (10) working days following the deadline for comments, along with proof of successful fax transmission. Email or fax submissions must include full name and address. All comments will be included in the final environmental document for this project and become part of the public record.

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

Liz Burko
District Superintendent

Date

Renee Pasquinelli
Environmental Coordinator

Date

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CHAPTER 1 INTRODUCTION

1.1 INTRODUCTION AND REGULATORY GUIDANCE

The Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared by California State Parks (CSP) to evaluate the potential environmental effects of the proposed Dune Rehabilitation Project at MacKerricher State Park, Mendocino County, California. This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code §21000 *et seq.*, and the State CEQA Guidelines, California Code of Regulations (CCR) §15000 *et seq.*

An Initial Study is conducted by a lead agency to determine if a project may have a significant effect on the environment [CEQA Guidelines §15063(a)]. If there is substantial evidence that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) must be prepared, in accordance with CEQA Guidelines §15064(a). However, if the lead agency determines that revisions in the project plans or proposals made by or agreed to by the applicant mitigate the potentially significant effects to a less-than-significant level, a Mitigated Negative Declaration may be prepared instead of an EIR [CEQA Guidelines §15070(b)]. The lead agency prepares a written statement describing the reasons a proposed project would not have a significant effect on the environment and, therefore, why an EIR need not be prepared. This IS/MND conforms to the content requirements under CEQA Guidelines §15071.

1.2 LEAD AGENCY

The lead agency is the public agency with primary approval authority over the proposed project. In accordance with CEQA Guidelines §15051(b)(1), "the lead agency will normally be an agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose." The lead agency for the proposed project is CSP. The contact person for the lead agency regarding specific project information is:

Renee Pasquinelli, Senior Environmental Scientist
Email: rpasquinelli@parks.ca.gov

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

Renee Pasquinelli, Senior Environmental Scientist
California State Parks
Mendocino District
12301 North Highway 1 – Box 1
Mendocino, CA 95460
Fax : (707) 937-2953
Email: rpasquinelli@parks.ca.gov

Submissions must be in writing and postmarked or received by fax or email no later than June 8, 2012. The originals of any faxed document must be received by regular mail within ten (10)

working days following the deadline for comments, along with proof of successful fax transmission. Email or fax submissions must include full name and address. All comments will be included in the final environmental document for this project and become part of the public record.

1.3 PURPOSE AND DOCUMENT ORGANIZATION

The purpose of this document is to evaluate the potential environmental effects of the proposed Dune Rehabilitation Project at MacKerricher State Park. Mitigation measures have been incorporated into the project to either eliminate any potentially significant impacts or reduce them to a less-than-significant level.

This document is organized as follows:

- Chapter 1 - Introduction.
This chapter provides an introduction to the project and describes the purpose and organization of this document.
- Chapter 2 - Project Description.
This chapter describes the reasons for the project, scope of the project, project objectives, and project requirements.
- Chapter 3 - Environmental Setting, Impacts, and Mitigation Measures.
This chapter identifies the significance of potential environmental impacts, explains the environmental setting for each environmental issue, and evaluates the potential impacts identified in the CEQA Environmental (Initial Study) Checklist. Mitigation measures are incorporated, where appropriate, to reduce potentially significant impacts to a less than significant level.
- Chapter 4 - Mandatory Findings of Significance.
This chapter identifies and summarizes the overall significance of any potential impacts to natural and cultural resources, cumulative impacts, and impact to humans, as identified in the Initial Study.
- Chapter 5 - Summary of Mitigation Measures.
This chapter summarizes the mitigation measures incorporated into the project as a result of the Initial Study.
- Chapter 6 - References.
This chapter identifies the references and sources used in the preparation of this IS/MND.
- Chapter 7 - Report Preparation
This chapter provides a list of those involved in the preparation of this document.

1.4 SUMMARY OF FINDINGS

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

Based on the IS and supporting environmental analysis provided in this document, the proposed MacKerricher Dune Rehabilitation Project would result in less than significant impacts for the following issues: aesthetics, agricultural and forest resources, air quality, biological resources, cultural resources, greenhouse gas emissions, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation/traffic, and utilities and service systems.

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

CHAPTER 2 PROJECT DESCRIPTION

2.1 INTRODUCTION

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared by California State Parks(CSP) to evaluate the potential environmental effects of the proposed MacKerricher State Park Dune Rehabilitation Project within the Inglenook Fen – Ten Mile Dunes Natural Preserve (Preserve), MacKerricher State Park, located near the unincorporated town of Cleone, Mendocino County, California. The proposed project restores natural ecosystem processes that are critical to recovery of coastal dune habitat, which supports threatened and endangered species, by removing a paved road and underlying rock ballast, culverts, and nonnative plants.

2.2 PROJECT LOCATION

This project would be implemented completely within the boundaries of the 1,285-acre Inglenook Fen -Ten Mile Dunes Natural Preserve in MacKerricher State Park, Mendocino County, California. The project area is west of Highway 1 and stretches from the northern boundary at the Ten Mile River to the southern boundary at Ward Avenue.

2.3 BACKGROUND AND NEED FOR THE PROJECT

The mission of California State Parks is to *“provide for the health, inspiration, and education of the people of California by helping to preserve the state’s extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation.”* In 1995, the fen complex and dunes of MacKerricher State Park were classified as the Inglenook Fen -Ten Mile Dunes Natural Preserve to recognize the regional and statewide significance of its outstanding natural values.

The foundation for State Parks’ management approach for all units is based on the unit classification statutes as defined in the Public Resources Code (PRC § 5019.50 - 5019.80). PRC Section 5019.71 specifies that the *“purpose of natural preserves shall be to preserve such features as rare or endangered plant and animal species and their supporting ecosystem, representative examples of plant and animal communities existing in California prior to the impact of civilization, geologic features illustrative of geologic processes, significant fossil occurrences or representative or unique bio-geographical patterns.”*

Coastal strand and dunes are prominent, naturally dynamic habitats within the Preserve, with the native species, including those listed as endangered, being adapted to the movement of sand and water. Within the project area, three segments of remnant logging road and 3 culverts impede these natural processes. European beachgrass, a nonnative, invasive plant, has displaced native dune plants and rendered large areas of the dunes unsuitable for many native plant and animal species. European beachgrass also alters natural dune processes by trapping windblown sand, resulting in foredunes of relatively high elevation. Segments of the elevated road berm and European beachgrass occur parallel to the beach, displacing nesting habitat for western snowy plovers (listed as Federally Threatened) and creating an access barrier for fledglings to forage. CSP proposes to remove these unnatural features to restore native habitats and to preserve “endangered plant and animal species and their supporting ecosystem”.

2.4 PROJECT OBJECTIVES

The MacKerricher State Park General Plan (1995) identifies restoration of natural vegetation and geologic processes, preservation and protection of sensitive species and critical habitat, and eradication of European beachgrass (*Ammophila arenaria*) as important objectives for management of the coastal dunes. Additionally, the General Plan recognizes maintenance of natural processes at river and creek mouths as a resource management objective for coastal strand habitat areas.

The primary objective of the project is to restore natural processes in a 1285-acre dune ecosystem of statewide significance within a Natural Preserve. Artificial structures that impede naturally dynamic sand and water movement would be eliminated from the preserve by the removal of a 2.7 mile (4.3 km) segment of road and 3 culverts. Approximately 250 acres of nesting habitat for the federally listed western snowy plover and 60 acres (24.3 ha) of native dune vegetation, including portions that can support habitat for the federally listed Howell's spineflower and Menzies' wallflower, would be opened up as a result of the removal of the road and European beachgrass.

2.5 PROJECT DESCRIPTION

CSP proposes to restore ecosystem processes that are crucial to the viability of endangered species and their habitats in the Inglebrook Fen-Ten Mile Dunes Natural Preserve (Preserve).

The following summarizes the proposed work:

- ◆ Remove three segments of abandoned asphalt roadway and a portion of or all underlying rock base totaling 2.7 miles (4.3 km). Some portions of the road will remain intact to protect sensitive resources.
- ◆ Remove up to three 5-foot diameter (1.5 meter) culverts and restore the stream bed, bank, and channel to a natural condition by removing fill material, grading unnatural banks, and facilitate the reestablishment of native plants.
- ◆ Treat approximately 17 acres (6.9 ha) of previously untreated European beachgrass with an integrated pest management approach that includes hand removal and herbicide.
- ◆ Retreat approximately 38 acres (15.4 ha) of European beachgrass and other nonnative weeds with hand removal and herbicide.
- ◆ Remove non-native trees, shrubs, and European beachgrass, and establish native conifers where appropriate in a 7 acre (2.8 ha) area of back dunes.
- ◆ Reestablish federally and state-listed threatened and endangered species and other native plants into suitable habitat by direct seeding, transplanting, or installation of cuttings.
- ◆ Remove iceplant in select areas to increase habitat for the federally listed Howell's spineflower.

2.6 PROJECT IMPLEMENTATION

Road and Culvert Removal

CSP proposes to remove sections of a remnant haul road totaling approximately 2.7 miles (4.3 km) in length. The Ten Mile Dunes haul road proposed for removal begins 0.81 miles (1.3 km) north of the Preserve's southern boundary near Ward Avenue and continues north to the Ten Mile River and estuary at the Preserve's northern boundary. The road runs parallel to the coastal strand and crosses two creeks: Fen Creek to the south and Inglebrook Creek to the north. Due to erosion and washouts, some sections of the road are isolated and non-

contiguous to the rest of the road.

At the southern end of the Preserve and north of the Ward Avenue access, the road has been completely washed out and no longer exists as a roadway. Heavy equipment necessary for the removal of the road cannot negotiate the existing footpath from the bluffs to the beach. The narrow path is also a popular access point for recreationists. Vehicle traffic on the beach or through the adjacent dune system in this area would cause negative impacts to federally listed plant and wildlife species. South of Fen Creek the road becomes severely eroded and is broken into two disconnected portions. However, the road is intact in the northern portion of the Preserve, although some segments are covered in loose sand. Vehicle access is available to this area from a gated road located near the Ten Mile River Bridge. Due to these conditions, all vehicle and equipment access to the work site would be from the north near the Ten Mile River Bridge, making use of the existing roadway to drive equipment as far south as possible. Where the roadway ends, a temporary ramp made of natural rock material may be used to move vehicles from the road berm edge to wet sand on the beach below in order to reach stranded remnants of the old haul road at the southern end of the Preserve. Road removal work will begin at the southern portion of the Preserve, with vehicles returning to the road where it is still intact to haul out materials as the project progresses northward.

Based on site analysis by project engineers and data from ground-penetrating radar, CSP estimates that the total volume of materials to be removed is approximately 25,000 cubic yards (19,114 cubic meters). Materials removed during the project may be temporarily stockpiled south of the Ten Mile River Bridge within the Caltrans highway pullout ("mixing table").. Materials such as concrete, asphalt, road base and metal culverts would be recycled or reused if possible. A portion of the road materials would be available to the contractor for salvage. The remainder may be hauled approximately 20 miles (32 km) south to the old quarry site on CSP property at Big River to be used for future park projects, or hauled to other local sites for potential use by others. If equipment operates 5 days per week, CSP estimates that removal of the road and the hauling of materials from the stockpile area to disposal sites will take approximately 45 working days, or 9 weeks. Delivery of a portion of those materials to the Big River quarry site would take approximately 21 working days, or 4 weeks.

To facilitate road removal, the road is divided into three segments, or portions (Table 2.6–01: Ten Mile Dunes Haul Road Removal Portions and Culverts).

The three sections proposed for removal are: Portion 1, the southernmost remnant beginning 0.81 miles (1.3 km) north of the Preserve's southern boundary near Ward Avenue ; Portion 2, beginning 0.59 miles (0.95 km) south of Fen Creek; and Portion 3, beginning 0.41 miles (0.66 km) south of Fen Creek and continuing largely intact to the Preserve boundary to the northeast. (See Appendix A. Dune Rehabilitation Map) Three culverts will be removed along Portion 3 at Fen Creek and Inglenook Creek. In general, the project proposes to remove the entire length of the haul road including remnant asphalt surface and underlying road base within the Preserve's dune system, except where removal would harm sensitive resources.

Portion 1

Portion 1 stretches about 720 feet (220 m) in length above the coastal strand. It is disconnected from the existing haul road to the north and south. The portion sits atop foredunes, and annual high winter tides further undercut the portion. Segments of the remaining asphalt are unstable and perched above an actively changing beach/coastal strand. Asphalt segments that have

broken off lean against the coastal side of the elevated road berm and are carried to sea by high waves during storm events (Figure 2.6–01).

Access to Portion 1 would require that project equipment and vehicles travel across wet sand below the high tide line to approach from the coastal side. CSP staff will conduct daily project area surveys for sensitive species prior to allowing vehicle access on the beach.



Figure 2.6–01: Portion 1-Vertical Position



Figure 2.6–02: Portion 2-Horizontal Position

Portion 2

Portion 2 is a 262-foot (80 m) segment above the coastal strand approximately 200 feet (61 m) NNE (up the coast) from Portion 1. This portion is also isolated from other road portions without access by the existing haul road. Portion 2 sits atop foredunes and annual high winter tides further undercut it. Large segments of asphalt are leaning against the coastal side of the remnant road berm (Figure 2.6–02).

Access to Portion 2 will require project equipment and vehicles to travel across wet sand below the high tide line to approach from the coastal side. Similar to requirements for Portion 1, CSP staff will conduct daily project area surveys for sensitive species prior to allowing vehicle access on the beach.

Portion 3

The largest portion of road to be removed is Portion 3. A little under 2.5 miles (4 km), it extends from approximately 755 feet (230 m) NNE (up the coast) from Portion 2 to the northern end of the haul road at the Preserve boundary. The haul road then continues on adjacent private property, where it will not be treated as part of this project. The road in Portion 3 angles slightly back from the coastal strand, and crosses Fen Creek and Inglenook Creek. This portion can be accessed from the existing haul road in its entirety and is mostly intact with the road base still in place. In numerous places, windblown sand has covered the road to a depth of several feet.

Treatment of Portion 3 will include sand removal from the road surface to facilitate vehicle and equipment access as well as asphalt and road base removal using heavy equipment. Approximately 6000 cubic yards (4587 cubic meters) of sand would be removed and temporarily stockpiled in approved locations adjacent to the road berm. Equipment will operate on the existing roadway to remove asphalt and road base. As asphalt and road base are removed by

sections, the stockpiled sand, with associated plant materials and native seed, will be moved back to replace the former road.

Fen Creek is currently channeled to flow beneath the haul road through a culvert. Where Inglebrook Creek passes under the haul road, concrete riprap is visible below the western side of the road. Inglebrook Creek may be passing through an unseen culvert below the riprap or simply seeping through the structure and partially blocked culvert. Culvert removal for both creeks would include excavating the fill, pulling out culvert structures, grading the sides of the creek banks to return the channel to a more natural state, and allowing natural processes to establish the channel configurations. Native vegetation will become reestablished where suitable through natural regeneration, or through a combination of natural regeneration augmented with the installation of cuttings and/or direct seeding. All non-ballast materials and structures will be transported offsite for disposal and reused or recycled if possible.

Table 2.6 – 01: Ten Mile Dune Haul Road Removal Portions and Culverts

Ten Mile Dunes Haul Road /Culvert crossing to be removed	Approx. Length feet (meters)	Portion End Point	Latitude and Longitude (in decimal degrees)		UTM Zone 10 NAD 83		Township, Range, Section, ¼ section
					EAST	NORTH	
Portion 1	720 (220)	South	39.512818	-123.781958	0432780	4373979	19N, 17W ,17, NW
		North	39.514672	-123.781059	0432859	4374184	
Portion 2	260 (80)	South	39.515150	-123.780890	0432874	4374237	19N, 17W ,17, NW
		North	39.515801	-123.780572	0432902	4374309	
Portion 3	13,120 (4000)	South	39.517699	-123.779697	0432979	4374519	19N, 17W, 05 & 08, SE– NE
		North	39.548977	-123.765650	0434216	4377980	20N, 17W, 33, SW
Crossings							
Fen Creek	300 (91)		39.523030	-123.776220	0433283	4375108	19N, 17W, 08, SW
Inglenook Creek	400 (122)	North	39.530260	-123.772961	0433570	4375908	19N, 17W, 08, NW
		South	39.529826	-123.773108	0433557	4375860	

European Beachgrass Removal

The establishment of European beachgrass in dune ecosystems drastically impacts native habitats by altering the natural topography and outcompeting native plants, often to the point of exclusion (see discussion under 3. IV Biological Resources, Flora, Other (Non Special Status) Natural Communities) In the Preserve, European beachgrass occupies the habitat of the federally and state listed Howell's spineflower (*Chorizanthe howellii*) and Menzies' wallflower (*Erysimum menziesii* spp. *menziesii*) and at least four other plants of limited distribution recognized within the California Rare Plant Rank list (formerly CNPS list) (*Abronia umbellata* spp. *brevifolia*, *Gilia millefoliata*, *Collinsia corymbosa*, and *Oenothera wolfii*).

The removal of European beachgrass has been an ongoing integrated pest management project in the Preserve since approximately 2000. A 2-acre (0.8 ha) patch north of Inglenook Creek and a 3.5-acre (1.4 ha) patch south of Fen Creek were pulled by hand from 2001-2004. In September 2006 an 80-acre (32.4 ha) prescribed burn was conducted to reduce the European beachgrass thatch and promote new, green shoots for herbicide treatment the following year. Since 2007 different areas of European beachgrass have been treated and retreated with glyphosate and imazapyr herbicides.

For the proposed project, European beachgrass throughout the Preserve will be treated with a combination of herbicide application (glyphosate and imazapyr) and hand removal. Primary treatment areas include 17 acres of European beachgrass that have not previously been treated and 38 acres of European beachgrass that will be retreated to gain optimal control. Since 2007, the original cover of 95 acres of European beachgrass has been reduced by approximately 60%; the retreatment areas are contained within the remaining 40%. A secondary treatment area consists of 7 acres (2.8 ha) of European beachgrass growing within an eastern area of the Preserve. Removal of beachgrass in this secondary area will be undertaken in the future after further evaluation that includes the effects of native tree establishment (see Appendix A: European Beachgrass Treatment Areas).

The decision to use herbicides as a method for weed treatment in the Preserve and a summary of the toxicity of the proposed herbicides as documented in recent and past publications has been evaluated by CSP through an Integrated Pest Management Analysis (Appendix E – Integrated Pest Management Analysis).

(Primary) New Treatment Areas – Approximately 17 acres (6.9 ha) of European beachgrass have not been previously treated (pulled, burned, or herbicide application) and will be treated with a combination of herbicide (imazapyr and glyphosate) and hand removal to reduce the cover and spread in dune habitat. Herbicide will be applied by backpack sprayers for initial and follow-up treatments, and will continue under the Mendocino District's on-going maintenance program until European beachgrass is eradicated from the Preserve. Access to remote areas will be with four wheel all-terrain vehicles along a path designated by State Park natural and cultural science staff that avoids special status plants and natural communities and archaeological sites. All work will follow avoidance measures for rare plants and animals (See Standard Project Requirements – Biological Requirements).

(Primary) Retreatment Areas – Approximately 38 acres (15.4 ha) of European beachgrass

growing within an area of approximately 95 acres (38.4 ha) will be retreated in the same manner as the New Treatment Areas described above. In retreated areas, the total cover of European beachgrass has been reduced by approximately 60% since treatment in 2007, thus 40%, or 38 acres (15.4 ha) of the original 95 acres (38.4 ha) of European beachgrass currently remain and will be retreated. All work will follow avoidance measures for rare plants and animals (See Standard Project Requirements, Biological Requirements).

Secondary Treatment Area –A 7 acre (2.8 ha) area of steep dunes primarily covered in European beachgrass occupies the eastern portion of the Preserve west of Beal Lane and Ocean View Drive. Other plants occurring here are Portuguese broom (*Cytisus striatus*), lupine (*Lupinus littoralis*), Douglas-fir (*Pseudotsuga menziesii*), shore pine (*Pinus contorta* ssp. c.), Monterey pine (*Pinus radiata*), bishop pine (*Pinus muricata*), scattered eucalyptus saplings (*Eucalyptus globulus*) and pampas grass (*Cortaderia jubata*) (Figure 2.6–03). Immediately to the east of this area is a stand of willow and conifers.



Figure 2.6–03: Photograph of Secondary Treatment Area

While aeolian sand transport is a natural process in a dune environment, sand becomes deposited and its movement halted on the eastern fringes of dunes where conifers are established. The removal of wooded areas backing the eastern edge of the Ten Mile Dunes has provided an uninterrupted path for wind-carried sand and the landward expansion of the dunes in the Preserve (Barry & Schlinger 1977). Thus, the management objective for the 7 acre secondary treatment area is to encourage the establishment of native trees where appropriate. Once established, these trees will act as a trap for sand-laden northwestern winds moving across the dunes. This approach will provide a vegetative buffer for the wetland to the east, affording it more protection and creating an environment that likely resembles pre-European landscape influences. It will also provide a buffer for the residences neighboring the eastern edge of the sand dunes. Native tree establishment will be further encouraged in this area by protecting those that do occur and potentially transplanting seedlings of native trees where

appropriate.

European beachgrass, Monterey pine, broom, and eucalyptus growing in the 7 acre area will still be removed, but as a secondary priority and slowly over time. The woody plants will be cut and either left in place to provide structure for sand entrapment and native seed establishment, or burned on-site. Broom will be pulled with a weed wrench. Eucalyptus in the area will be pulled where possible or otherwise cut low to the ground. Follow-up treatment to eliminate eucalyptus sprouts will involve using hand tools to cut newly emerged sprouts at the point of attachment before they reach 2 feet in height. Hand pulling will also be used to remove broom, Monterey pine, and eucalyptus seedlings until eradication is successful.

Temporary Closures During Implementation

Prior to actual project implementation, preparatory actions would be taken in all park areas in which visitor access or recreation may be constrained or restricted due to project activities. Project information and area closure notices would be issued by the Mendocino District State Parks superintendent and published in local newspapers, as well as posted on the CSP website. During work activities, appropriate signs and notices would be provided at main access areas to alert park visitors to potential vehicle traffic or temporary road and area closures. Educational or safety-related information would be posted, and staging areas and travel corridors would be flagged and signed to insure visitor safety. These actions would also be applied to any use of the M1 road to the Big River quarry.

2.7 PROJECT REQUIREMENTS
BIOLOGICAL PROJECT REQUIREMENTS

<p>BIO-1a. Standard Project Requirement: Plants</p>	<ul style="list-style-type: none">a) All personnel engaged in restoration activities with the potential to harm special status plants will be instructed by a CSP-approved biological monitor in the identification of such special status plants and how to avoid them.b) Special status plant stands have been surveyed and mapped. Prior to work in these areas, special status plant boundaries will be identified in the field at the beginning of the work day and instruction on how to operate in these areas to avoid plants will be given to workers.c) To prevent damage to non-target plants, herbicide will be applied according to the product label and will not be applied when wind speed is greater than 10 mph to avoid accidental drift.d) Project work in new areas will commence only after seasonally-appropriate special status plant surveys are completed.
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BIOLOGICAL PROJECT REQUIREMENTS (continued)

BIO-1b. Specific Project Requirement: Plants	<ul style="list-style-type: none">a) Sand will not be stored in designated “Sand Storage Exclusion Zones” (also known as Sensitive Resource Areas) nor will project activities occur in these mapped areas east and west of the haul road. A CSP-approved biological monitor will flag these areas prior to the start of project activities.b) Stored sand will not be piled higher than the adjacent foredunes to prevent excessive sand movement.c) Excavated sand on top of the road will be moved to the nearest site outside of the “Sand Storage Exclusion Zones,” and where feasible, sand storage will primarily occur on the west side of the haul road and secondarily on the east side.d) Where there is a risk of herbicide being unintentionally applied to special status plants, invasive plants will be removed manually or herbicide will be applied with a low-emitting spray nozzle used in conjunction with cardboard shields against the special status plants. Care will be given to ensure that root systems of special status plants are not dislodged if invasive plants are hand-pulled.e) The small patches of <i>Horkelia marinensis</i> and <i>Oenothera wolfii</i> occurring within the 50 ft (15 m) road buffer will be flagged before construction and avoided.f) Access to remote areas will be with four wheel all-terrain vehicles along a path designated by CSP natural science staff that avoids special status plants.g) To maintain genetic integrity, only plant stock collected within the Ten Mile Dunes Natural Preserve will be used for revegetation in the project area.
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BIOLOGICAL PROJECT REQUIREMENTS (continued)

<p>BIO–2a. Standard Project Requirement: Vegetation Communities</p>	<ul style="list-style-type: none"> a) All personnel engaged in restoration activities with the potential to harm special status natural communities will be instructed by a CSP-approved biological monitor in the identification of such special status natural communities and how to avoid them. b) Special status natural communities have been surveyed and mapped. Prior to work in these areas, special status natural community boundaries will be identified in the field and flagged where appropriate at the beginning of the work day and instruction on how to operate in these areas will be given to workers by a CSP-approved biological monitor c) Herbicide will be applied according to the manufacturer’s label and will not be applied when wind speed is greater than 10 mph to avoid accidental drift onto non-target vegetation.
<p>BIO–2b. Specific Project Requirement: Vegetation Communities</p>	<ul style="list-style-type: none"> a) Where there is a risk of herbicide being unintentionally applied to special status natural communities, herbicide will be applied with a low-emitting spray nozzle. b) Sand will not be stored in the designated “Sand Storage Exclusion Zones” nor will project activities occur in these mapped areas east and west of the haul road. A CSP-approved biological monitor will flag these prior to the start of project activities. c) Excavated sand on top of the road will be moved to the nearest site outside of the “Sand Storage Exclusion Zones”, and where feasible, sand storage will primarily occur on the west side of the haul road and secondarily on the east side. d) Stored sand will not be piled higher than the adjacent foredunes to prevent excessive sand movement. Piled sand will be routinely monitored and silt fencing will be installed if it is determined that sand piles become mobile.

BIOLOGICAL PROJECT REQUIREMENTS (continued)

<p>BIO-3a. Standard Project Requirement: Wetlands</p>	<ul style="list-style-type: none">a) Herbicide will be applied according to the manufacturer's label and will not be applied when wind speed is greater than 10 mph to avoid accidental drift into wetlands.b) Herbicides applied to invasive plants in wetlands will be only with an aquatic-safe herbicide. No herbicide will be applied to plants that are surrounded by standing water.c) Integration of Standard Project Requirement HAZ-1 will prevent impacts to water quality from possible pollutants (fuels, vehicle fluids, herbicides) released from vehicles, heavy equipment, and spraying equipment during the project.
<p>BIO-3b. Specific Project Requirement: Wetlands</p>	<ul style="list-style-type: none">a) All fill from road berm that is currently within the creek channel will be removed from the creek bed and channel unless it is otherwise part of the engineering plans that reestablish native topography.

BIOLOGICAL PROJECT REQUIREMENTS (continued)

BIO-4. Specific Project Requirement: Invertebrates	<ul style="list-style-type: none">a) A CSP-approved biological monitor will conduct a visual survey of project areas immediately before ground-disturbing project activities are to begin, relocating any globose dune beetle or Ten Mile shoulderband snail found into adjacent, suitable habitat.b) Sand storage areas will be visually surveyed for globose dune beetle and Ten Mile shoulderband snail by a CSP-approved biological monitor before sand is placed in the area. Any individuals found will be relocated into adjacent, suitable, undisturbed habitat areas.c) Project personnel, including herbicide applicators, will be instructed by a CSP-approved biological monitor regarding the identification and life history of Ten Mile shoulderband snail, and instruction on the appropriate protocol to follow in the event that an individual resembling this species is found in the areas where herbicide is being applied.d) In the event that any shoulderband snail is located during herbicide application, the animal will be relocated by a CSP-approved biological monitor into adjacent, suitable, undisturbed habitat areas.e) To prevent impacts to invertebrates, herbicide will be applied according to label directions, directly to target non-native invasive plants and avoiding any invertebrates observed.
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BIOLOGICAL PROJECT REQUIREMENTS (continued)

<p>BIO-5 Project Requirement Amphibians and Reptiles</p>	<ul style="list-style-type: none"> a) Project personnel will be instructed by a CSP-approved biological monitor regarding the life history and habitat requirements of amphibians and reptiles, and instruction in the appropriate protocol to follow in the event that an amphibian or reptile is found on site. b) A CSP-approved biological monitor will be on site during all activities to ensure there are no impacts to amphibians or reptiles. c) Immediately prior to the start of work each morning a CSP-approved biological monitor will conduct a visual inspection of the project zone where activities will take place. d) If reptiles or amphibians are found, start of work at that project location will be delayed until the individuals are captured and relocated upstream or into suitable protected habitat by CSP-approved personnel.
<p>BIO-6a. Standard Project Requirements: Fish</p>	<ul style="list-style-type: none"> a) Streams and riparian zones will not be used as equipment staging or refueling areas. Equipment will be stored, serviced, and fueled away from streams and riparian areas. Heavy equipment will be cleaned (e.g., power washed, steamed) off-site prior to being used below the ordinary high water mark.
<p>BIO-6b. Specific Project Requirements: Fish</p>	<ul style="list-style-type: none"> a) At Fen Creek and Inglenook Creek, stream flow will be diverted following specifications detailed in the Water Diversion Plan submitted with the Streambed Alteration Agreement for the project. Where flow is sufficient to be intercepted, a small diversion dam will be built upstream and stream flow piped around the worksite and discharged into the stream below the worksite. If the stream is flowing at a slow rate and cannot be captured and diverted, filter structures will be installed downstream to filter turbid discharge from the work site. b) Erosion control measures will include slash packing and willow sprigging with native vegetation where appropriate for road crossings and culvert removal areas at Fen Creek and Inglenook Creek.

BIOLOGICAL PROJECT REQUIREMENTS (continued)

<p>BIO-6c. Specific Project Requirements: Fish. Tidewater goby</p>	<p>a) Under the direction of USFWS-permitted personnel, qualified staff will conduct pre-project surveys for Tidewater goby presence in Fen Creek and Inglenook Creek, at and downstream from the project area, within 30 days prior to project activity. The USFWS Recovery Plan for tidewater goby identifies July 1 to October 31 as the season of highest abundance for the species in general.</p> <p>b) As a precaution, avoidance measures recommended by the USFWS will be implemented to prevent potential impacts to tidewater goby and habitat. In the event that tidewater goby is detected in either Fen Creek or Inglenook Creek, Technical Assistance will be requested from USFWS..</p> <p>c)</p>
<p>BIO-7a. Standard Project Requirements: Birds</p>	<p>a) Additional project requirements will be incorporated with permit conditions in compliance with California Endangered Species Act (CESA), California Fish and Game Code §3503, 3503.5 and 3511, as well as the United States Endangered Species Act of 1973 and Migratory Bird Treaty Act of 1918 unless exceptions are authorized through permitting and/or technical assistance from the DFG, USFWS, or other appropriate authority.</p> <p>b) Prior to project activities a CSP-approved biological monitor will survey project areas and surrounding suitable habitats for nesting birds. If breeding is discovered, avoidance measures as detailed below will be implemented to minimize disturbance.</p>

BIOLOGICAL PROJECT REQUIREMENTS (continued)

<p>BIO-7b Specific Project Requirement: Birds. Nesting Raptors and Migratory Birds</p>	<ul style="list-style-type: none"> a) If possible, noise-generating project activities will not occur during the raptor and migratory bird breeding season (February 1 – September 15). b) If project-related activities must be scheduled during the breeding season, then focused surveys for nesting migratory bird and raptor species will be conducted by a CSP-approved biologist before project activities occur in these months to identify active nests. c) Surveys for active raptor nests will be conducted within a 500-foot (152 m) radius of the project area 10 days prior to the beginning of project work at each site. If nesting raptors are found, no project activities will occur within a 500-foot (152 m) radius of the nest until the young have fledged and the young will no longer be impacted by project activities (as determined by a CSP-approved biologist) and there is no evidence of a second attempt at nesting. d) Surveys for active migratory bird nests will be conducted within a 100-foot (30.5 m) radius of the project area 10 days prior to the beginning of project work at each work site. If active nests are located, then no project activities will occur within a 100-foot (30.5 m) radius of the nest location until the young have fledged and the young will no longer be impacted by project activities (as determined by a CSP-approved biologist).
<p>BIO-7c. Specific Project Requirement: Birds. Wintering burrowing owl</p>	<ul style="list-style-type: none"> a) Surveys for burrowing owls and active owl burrows will be conducted within a 164 ft. (50 m) radius of the project area prior to the beginning of project activities b) No disturbance will occur within 164 ft. (50 m) of occupied burrows during the nonbreeding season of September 1 through January 31

BIOLOGICAL PROJECT REQUIREMENTS (continued)

BIO-7d. Specific Project Requirement: Birds. Western Snowy Plover

- a) When practicable, project activities will occur during the non-breeding season, from September 15 - March 15.
- b) Each day, prior to the start of project work, all areas within 1000 feet (300 meters) of project activities will be surveyed for the presence of snowy plovers. The first survey will be conducted the day before the start of the project. Surveys will follow the general survey methods described in the Mendocino District's Recovery Permit.
- c) If plovers are *not* seen in the survey area, the project facilitators will be given direction to proceed, with the condition that a plover surveyor be present to monitor the project while it is ongoing.
- d) If plovers are seen within 660 feet (200 meters) of the project area, activities in that area will be cancelled until the next day, and another survey will be conducted.
- e) If birds are seen on the second survey, but no nest is found, the project will proceed with a plover surveyor in attendance for monitoring.
- f) Plover surveyors will be responsible for directing project facilitators to stop or modify activities if plovers exhibit disturbance behavior that is related to the project activity.
- g) If at any time a nest is located within 330 feet (100 meters) of the project, project work in that area will be canceled until the end of the breeding season, or until further monitoring activities document that the nest is no longer active.
- h) Vehicle use will be minimized to the extent practicable. Vehicles will operate on the haul road instead of the beach whenever practicable. A corridor will be delineated and clearly marked by a qualified monitor to provide vehicle access from the haul road to the beach; only approved corridors will be used for this purpose. Vehicles operating on the beach will be accompanied by a qualified monitor, and remain on wetted sand whenever possible.
- i) Project work, including operation of vehicles, will occur no earlier than ½ hour after sunrise and conclude at least ½ hour before sunset.
- j) Coastal strand habitat will not be used as equipment staging or refueling areas. Equipment will be

	<p>stored, serviced, and fueled away from coastal strand and dune areas. Heavy equipment will be cleaned (e.g., power washed, steamed) off-site prior to being used below the ordinary high water mark.</p> <p>k) CSP may consult with USFWS and request technical assistance for site-specific avoidance or mitigation measures. Any such changes will be amended into the Mitigated Negative Declaration if necessary.</p>
<p>BIO-8. Standard Project Requirements: Marine Mammals</p>	<p>a) Additional project requirements will be incorporated with permit conditions in compliance with California Endangered Species Act (CESA), and California Fish and Game Code §4500, and the United States Endangered Species Act of 1973.</p> <p>b) In the event a marine mammal hauls out onto the coastal strand, project activities will be minimized to the extent practicable within 820 feet (250 meters).</p> <p>c) Travel along the wet sands below the tide-line will cease within 330 feet (100 meters) of the marine mammal until it has returned to the ocean.</p> <p>d) Project activity will be minimized to the extent practicable until the marine mammal has departed the area.</p>

CULTURAL RESOURCES PROJECT REQUIREMENTS

<p>CULT-1. Standard Project Requirement: Prior to project implementation</p>	<ul style="list-style-type: none">a) A CSP-qualified Archaeologist will consult with the contractor and project manager to identify all cultural resources that must be protected.b) A CSP-qualified Archaeologist will flag and/or fence all cultural resources with a buffer of 33 feet (10 meters) for avoidance during project activities. The fencing will be removed after the project has been completed.c) Prior to any earthmoving activities, a CSP-qualified Archaeologist will approve all subsurface work, including the operation of heavy equipment within 82 feet (25 meters) of the identified sensitive resource area.d) A CSP-qualified Archaeologist will train project personnel in cultural resource identification and protection procedures.e) Any locations where ground disturbing activities are proposed for the removal of invasive plant species or for planting of native plants will require additional archaeological review. This will include archival research and possible field investigations to identify previously undocumented archaeological resources in specified treatment areas.
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CULTURAL RESOURCES PROJECT REQUIREMENTS (continued)

<p>CULT-2. Specific Project Requirements: Prior to project implementation</p>	<ul style="list-style-type: none"> a) A CSP-qualified Archaeologist familiar with the project will provide the project manager a site-specific avoidance plan with associated maps developed for this project. These documents will illustrate the extent of permissible project work at each culturally sensitive area and will be based on the extent of the archaeological constituents, the location of the resource in relation to the area of direct impact, and the level of proposed ground disruptions at each location. Due to the sensitivity of the archaeological resources and associated confidentiality issues, the avoidance plan and maps will not be provided in this public document; but rather, to the project manager and other appropriate project personnel when completed. b) A CSP-qualified Archaeologist familiar with the project will review and authorize all vehicle and equipment staging and material storage sites except those staging/storage locations situated on the currently paved surface of the Haul Road or those locations outside of the park. c) All excess sand generated from clearing of the haul road can be disposed of in the Preserve; however, disposal locations will not be allowed within the boundaries (with a 33 feet (10 meter) buffer) of archaeological sites. Additionally, prior to disposal of the excess sand, locations selected for this activity will need clearance from a CSP-qualified Archaeologist.
<p>CULT-3. Specific Project Requirements: General Avoidance</p>	<ul style="list-style-type: none"> a) No track-mounted or heavy-wheeled vehicles will be allowed in identified sensitive resource areas. If foot traffic is necessary, this will only be allowed with specific permission from the State’s Representative after clearance with an appropriate CSP-qualified Archaeologist. Additionally, this equipment will be restricted to the hardened footprint of the former haul road. If circumstances dictate the need to deviate from the road footprint, these areas will require prior clearance from the CSP-approved Archaeologist reviewing the project. b) Vehicle access and equipment staging will not be allowed in locations of known archaeological sites. c) No ground disturbing activities will be allowed within the boundaries of archaeological sites for plant eradication or revegetation efforts. d) All introduced materials associated with the removal of the haul road will be disposed of outside of the Preserve and the greater MacKerricher State Park at the end of the project.

	e) Access to remote areas will be with four wheel all-terrain vehicles along a path designated by State Park cultural science staff that avoids archaeological sites.
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CULTURAL RESOURCES PROJECT REQUIREMENTS (continued)

<p>CULT-4. Specific Project Requirements: Documented Archaeological Site Avoidance This Section Is not to be available to the public.</p>	
<p>CULT-5. Standard Project Requirement: Monitoring</p>	<p>a) A CSP qualified Archaeologist will monitor all ground disturbing phases of this project at his/her discretion (refer to Specific Project Requirements related to monitoring).</p> <p>i. The project manager will notify the CSP Northern Service Center or District Cultural Resource Section a minimum of three weeks prior to the start of ground-disturbing work to schedule archaeological monitoring, unless other arrangements are made in advance.</p>
<p>CULT-6. Specific Project Requirements: Monitoring</p>	<p>a) A CSP-qualified Archaeologist will be present to monitor for all ground disturbing activities related to this project. These activities include but are not limited to road removal, culvert restoration, invasive plant removal, and revegetation efforts. In some instances, archaeological monitoring may not be warranted; however, this will be determined at the discretion of the CSP Archaeologist responsible for the review of this project.</p>

CULTURAL RESOURCES PROJECT REQUIREMENTS (continued)

CULT-7. Standard Project Requirement: Undocumented Discovery	<ul style="list-style-type: none">a) A CSP-qualified Archaeologist will record historic fabric or features discovered during the project (a photograph and/or drawing showing any new material must be prepared or recovered and archived).b) If a CSP-qualified Archaeological Monitor discovers previously undocumented cultural resources during project activities, work within 82 feet (25 meters) of the find will be temporarily halted until the Archaeologist designs and implements appropriate treatments in accordance with the Secretary of the Interior's Standards and Guidelines for archaeological resource protection.<ul style="list-style-type: none">i. The project manager working with the Archaeologist will modify the project to ensure that project activities will avoid cultural resources upon review and approval of a CSP-qualified Archaeologist.ii. If ground disturbing activities uncover intact cultural features (including but not limited to dark soil containing shellfish, bone, flaked stone, groundstone, or deposits of historic ash), when a CSP-qualified Archaeologist is not on-site, the project manager will contact the CSP State Representative immediately and will temporarily halt or divert work within the immediate vicinity of the find until a CSP-qualified Archaeologist evaluates the find and determines the appropriate treatment and disposition of the cultural resource.
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CULTURAL RESOURCES PROJECT REQUIREMENTS (continued)

CULT-8 Standard Project Requirement: Human Remains	<ul style="list-style-type: none">a) In the event that human remains are discovered, work will cease immediately in the area of the find and the project manager/site supervisor will notify the appropriate CSP personnel. Any human remains and/or funerary objects will be left in place or returned to the point of discovery and covered with soil. The CSP Sector Superintendent (or authorized representative) will notify the County Coroner, in accordance with §7050.5 of the California Health and Safety Code, and the Native American Heritage Commission (or Tribal Representative). If a Native American monitor is on-site at the time of the discovery, the monitor will be responsible for notifying the appropriate Native American authorities.b) The local County Coroner will make the determination of whether the human bone is of Native American origin.c) If the Coroner determines the remains represent Native American interment, the NAHC in Sacramento and/or tribe will be consulted to identify the most likely descendants and appropriate disposition of the remains. Work will not resume in the area of the find until proper disposition is complete (PRC §5097.98). No human remains or funerary objects will be cleaned, photographed, analyzed, or removed from the site prior to determination.d) If it is determined the find indicates a sacred or religious site, the site will be avoided to the maximum extent practicable. Formal consultation with the State Historic Preservation Office and review by the Native American Heritage Commission/Tribal Cultural representatives will occur as necessary to define additional site mitigation or future restrictions.
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GEOLOGY PROJECT REQUIREMENTS

<p>GEO-1. Stand Project Requirements: Best Management Practices</p>	<p>a) Best Management Practices (see pertinent sections of Appendix E. Best Management Practices) will be used in all project areas to control sand/soil movement and surface water runoff during excavation and removal of the road remnants and culverts. If excavation and removal of remnant road materials take place during winter months, temporary erosion control measures will be used to protect and “winterize” any soils stockpiled offsite.</p>
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GREENHOUSE GAS AND AIR QUALITY PROJECT REQUIREMENTS

<p>GHG & AIR-1. Standard Project Requirement: Ozone-Related Emissions</p>	<p>a) CSP and its contractor(s) will maintain all construction equipment in good mechanical condition, according to manufacturer’s specifications. Construction equipment exhaust emissions will not exceed Bay Area Air Quality Management District (BAAQMD) Regulation IV – Rule 400 – Visible Emissions limitations (Cal EPA 2007b).</p> <p>b) All off-road and portable diesel-powered equipment, including but not limited to bulldozers, graders, cranes, loaders, scrapers, backhoes, generator sets, compressors, auxiliary power units, will be fueled with California Air Resources Control Board (CARB)-certified motor vehicle diesel fuel.</p> <p>c) Idling time for all diesel-powered equipment will be limited to five minutes, except as necessary to maintain a continuous workflow or for safety considerations.</p> <p>d) The use of diesel construction equipment meeting the CARB’s 1996 or newer certification standard for off-road heavy-duty diesel engines will be maximized to the extent feasible</p> <p>e) Electric and/or gasoline-powered equipment, or equipment using alternative fuels, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, or biodiesel, will be substituted for diesel-powered equipment, when available.</p>
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GREENHOUSE GAS AND AIR QUALITY PROJECT REQUIREMENTS (continued)

GHG & AIR-2. Standard Project Requirement: Particulate Matter Fugitive Dust Emissions	<ul style="list-style-type: none">a) Ground-disturbing activities will be suspended when sustained winds exceed 25 miles per hour (40 kilometers per hour), instantaneous gusts exceed 35 miles per hour (56 kilometers per hour), or dust from project activities might obscure driver visibility on public roads.b) As necessary, disturbed areas of the site will be covered (tarp) or watered depending on the conditions, using water trucks and/or sprinkler systems, to prevent airborne dust from leaving the site.c) If available, reclaimed (non-potable) water will be used.d) Any dirt stockpiles will be covered (tarp) or watered daily, as necessary to prevent dispersion of windblown duste) All trucks hauling dirt, sand, soil, or other loose materials on public roads will be covered or will maintain at least two feet (0.6 meters) of freeboard (minimum vertical distance between top of load and top of trailer), in accordance with California Vehicle Code Section 23114.f) Project requirements will also be implemented during holidays, weekend periods, or times when work is temporarily suspended, as necessary to control site conditions generating fugitive dust. Contact information for the project manager as well as the Mendocino County Air Quality District will be made available to the public to ensure compliance with applicable regulations.
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HAZARDS AND HAZARDOUS MATERIALS PROJECT REQUIREMENTS

HAZ-1. Standard Project Requirements: Spill Prevention	<ul style="list-style-type: none">a) All equipment will be inspected for leaks immediately prior to the start of the project, and regularly inspected thereafter until equipment is removed from park premises.b) No maintenance or fueling activities will be allowed within 200 feet (61 m) of any body of water.c) Fuel transfer will be done over an impervious surface. Portable containment equipment will be used during fueling.d) A Spill Prevention, Control, and Countermeasure Plan (SPCC Plan) will be prepared prior to the start of the project and an appropriate spill kit maintained onsite throughout the duration of the project. The SPCC Plan will include a map delineating project staging or storage areas and areas where refueling, lubrication, and maintenance of equipment may occur. In the event of a spill or release of any chemical on or adjacent to the project site, the contractor or equipment operator will immediately notify appropriate CSP staff and implement the Mendocino District Hazardous Spill Response Procedures. Appropriate agencies will be notified in the event of significant spillage.e) Other than emergency repairs, all equipment cleaning and repair will occur outside of the Natural Preserve at designated authorized sites. All contaminated liquids and materials and other hazardous compounds will be disposed of at a designated authorized site.f) When not in use, herbicides and other hazardous materials will be stored in a locked storage area. Materials will be transported to the work site in spill proof containers and will be secured in the vehicle so as to prevent spillage.<ul style="list-style-type: none">i. An individual holding a Qualified Applicator Certificate from the Department of Pesticide Regulation will oversee the use of herbicides in this project to ensure safe handling (including storage, mixing and application) of herbicides and adjuvants. All herbicides will be handled, applied, and disposed of in accordance with the MSDS Fact Sheet and all local, State, and federal laws. Storage of herbicides and adjuvants/surfactants on-site shall be allowed only in accordance with an approved spill prevention and containment plan; onsite mixing and filling operations shall be confined to areas appropriately bermed or otherwise protected to prevent spread or dispersion of spilled herbicide or surfactants into surface waters, soil, vegetation, or wildlife habitat.
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	g) To prevent runoff of herbicide from the target plants, herbicide will not be applied if rain is forecasted for the scheduled day of application.
HAZ–2. Standard Project Requirements: Hazardous Substances Health and Safety	a) CSP will include, in any contract documents or in internal work plan documents, health and safety specifications regarding management of potential hazardous incidents. The specifications will include methods for safe handling, collection, and proper disposal of any contaminated soil and refuse uncovered during the excavation and grading procedures; discuss the proper personal protection during project activities; the use of an exclusion zone if necessary to prevent exposure to the public; and the proper disposal procedures for any hazardous substances encountered. b) An individual holding a Qualified Applicator Certificate from the Department of Pesticide Regulation will oversee the use of herbicides in this project to ensure safe handling (including storage, mixing and application) of herbicides and adjuvants. All herbicides will be handled, applied, and disposed of in accordance with the MSDS Fact Sheet and all local, State, and federal laws. c) Project information and area closure notices will be issued by the Mendocino District State Parks superintendent and published in local newspapers as well as posted on the CSP website. d) During work activities and immediately after as needed, appropriate signs will be posted at main access areas to alert park visitors of area closures due to herbicide application or other public safety concerns. e) Educational or safety-related information will be posted, and staging areas and travel corridors will be flagged and signed to insure visitor safety.
HAZ–3. Standard Project Requirements: Fire Management	a) A fire safety plan will be in place prior to the start of any project activities, including identified fire suppression equipment and completion of any required employee training. b) Spark arrestors or turbo-charging (which eliminates sparks in exhaust) and fire extinguishers will be required for all heavy equipment. c) Project work crews will be required to park vehicles away from flammable material, such as dry grass and brush. At the end of each workday, heavy equipment will be parked at a designated staging area located on asphalt or bare sand to reduce the chance of fire. d) Implementation of the SPCC Plan during all phases of the project will insure the proper use, storage, and disposal of any flammable materials used during the project. e) CSP staff will be required to have a CSP two-way communications radio on site, which will allow

	direct contact with the Northern Communications dispatch center, to facilitate the rapid dispatch of control crews and equipment in case of a fire. Fire suppression equipment will also be available within the park.
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HYDROLOGY AND WATER QUALITY PROJECT REQUIREMENTS

HYDRO-1. Standard Project Requirements: Best Management Practices	<ul style="list-style-type: none">a) Any additional requirements identified through the permitting processes will be incorporated into the project design and specifications, and implemented as part of the project scope to avoid potential natural resource impacts.b) State Parks will adopt best management practices (refer to GEO-1) and use materials, methods, and techniques to implement erosion and sedimentation control and to otherwise stabilize slopes and barren soil surfaces, as described in Appendix E. Best Management Practices.c) Integration of Standard Project Requirement HAZ-1 will prevent impacts to water quality from possible pollutants (fuels, vehicle fluids, herbicides) released from vehicles, heavy equipment, and spraying equipment during the project.
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LAND USE AND PLANNING PROJECT REQUIREMENTS

LAND-1. Standard Project Requirement:	<ul style="list-style-type: none">a) Conditions and requirements identified through the Coastal Development Permit process will be incorporated into the project design and specifications, and implemented as part of the project scope to avoid potential natural resource impacts.
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NOISE PROJECT REQUIREMENTS

NOISE-1. Standard Project Requirements: NOISE	<ul style="list-style-type: none">a) Project activities will be limited to daylight hours, Monday - Friday. If work during weekends or holidays is required, no work will occur on those days before 7:30 am or after 8 p.m.b) Internal combustion engines used for any purpose at the job site will be equipped with a muffler of a type recommended by the manufacturer. Equipment and trucks used for project activities will utilize the best available noise control techniques (e.g., engine enclosures, acoustically-attenuating shields or shrouds, intake silencers, ducts, etc.) whenever feasible and necessary.c) Stationary noise sources and staging areas will be located as far from sensitive receptors as possible
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2.8 VISITATION TO MACKERRICHER STATE PARK

MacKerricher State Park is open year round to visitors for picnicking, hiking, jogging, bicycling, wildlife viewing, swimming, fishing, equestrian use, camping and other recreational activities. The Preserve is available for light day-use activity, although with specific regulations to protect resource values.

According to the most recent Statistical Report from the California State Park System, visitation from July 2009 through June 2010 at MacKerricher State Park was 633,502 day-use visitors and 76,105 campers.

Most visitor activity is concentrated around popular areas such as Pudding Creek Beach, Laguna Point boardwalk, Lake Cleone, campgrounds and visitor center, and the old haul road trail between the trestle at Pudding Creek and Ward Avenue. The proposed project would not affect visitor use at any of these locations.

The Coastal Trail, which also includes the designated equestrian trail through the Park, runs along the shoreline on the beach and would not be permanently affected by the project.

The proposed project would temporarily exclude day-use visitors from areas within the Preserve where work is being conducted.

2.9 CONSISTENCY WITH LOCAL PLANS AND POLICIES

All project components would be implemented within the boundaries of MacKerricher State Park and would be consistent with the CSP mission and management directives aimed at protecting natural and cultural resources while providing for public recreational opportunities. This project would not conflict with local plans or land-use policies for the immediate area or for adjacent landowners, nor for the County of Mendocino Local Coastal Plan.

The proposed Dune Rehabilitation Project is consistent with the following resource management objectives stated in the MacKerricher State Park General Plan (June 2005):

- Restore natural vegetation and geologic processes to dune systems wherever possible.
- Preserve and protect sensitive species and critical habitat.
- Maintain natural processes at river and creek mouths.

The proposed Dune Rehabilitation Project is consistent with the following goals and tasks outlined in the Final Draft Ten Mile Dunes Management Plan (2007):

- Restore and protect the natural dynamic processes in the Preserve.
- Remove the haul road surface, base and other materials introduced to construct the road prism along its entire length through the Preserve.
- Improve and sustain the hydrological integrity of the Inglenook Fen, stream corridors, and other wetlands in the Preserve.
- Remove culverts at all stream crossings (along haul road) in the Preserve.
- Protect and restore all native vegetation types and plant communities within the Preserve.

- Develop and implement habitat restoration plans, including invasive plant removals, for ecologically damaged vegetation types and plant communities.
- Protect and enhance populations and habitats of federally endangered plant species.
- Increase and enhance potential habitat for federally listed plants in the Preserve.
- Eradicate all European beachgrass from the Preserve.
- Protect and perpetuate western snowy plovers and their foraging and nesting habitat.
- Improve plover habitat through eradication of European beachgrass.

2.10 DISCRETIONARY APPROVALS

CSP has approval authority for implementation of the proposed project. The project will require discretionary approval from the California Department of Fish and Game for a Streambed Alteration Agreement (SAA). CSP will file an application for the SAA once the Notice of Determination has been filed for this project. CSP will also file an application for a Clean Water Act (CWA) Section 404 Permit with the US Army Corps of Engineers, and an application for CWA Section 401 the NCRWQCB. NOAA Fisheries will be consulted as part of the Section 404 permitting process. The US Fish and Wildlife Service and California Department of Fish and Game will review the planned project sites with regard to potential impacts to western snowy plover, listed plant species, and their respective habitats. Any permits required related to the listed species will be obtained in consultation with these agencies. As the project lies within the coastal zone, the project will require discretionary approval from the Mendocino County Planning and Building Services Department or California Coastal Commission through the Coastal Permit process. Discretionary approval from the Mendocino County Air Quality District will be sought through an application for a 207.27 permit.

2.11 RELATED PROJECTS

Glass Beach Coastal Headlands Restoration Project – With funding from an internal Coastal Impact Assistance Program (CIAP) grant, CSP is removing approximately five acres (2.02 ha) of non-native, invasive plants, and restoring approximately one acre (0.4 ha) of eroded areas impacted by volunteer trails. The Glass Beach Headlands is a 30+ acre (12 ha) parcel located at the southern end of MacKerricher State Park, approximately 5 miles south of the Dune Rehabilitation project area, that supports the only known population of Point Reyes *Blennosperma* that occurs north of Point Reyes. Natural resource staff has begun hand removal of non-native plants, as well as collecting seeds of native plants.

Eradication of European beachgrass – The removal of European beachgrass has been an ongoing integrated pest management project in the Preserve since approximately 2000. A 2-acre (0.8 ha) patch north of Inglenook Creek and a 3.5-acre (1.4 ha) patch south of Fen Creek were pulled by hand from 2001-2004. In September 2006 an 80-acre (32.4 ha) prescribed burn was conducted to reduce the European beachgrass thatch and promote new, green shoots for herbicide treatment the following year. Since 2007 different areas of European beachgrass have been treated and retreated with glyphosate and imazapyr herbicides.

CHAPTER 3 ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION

1. Project Title: MacKerricher State Park Dune Rehabilitation Project
2. Lead Agency Name & Address: California State Parks
3. Contact Person & Phone Number: Renee Pasquinelli: (707)937-5721
4. Project Location: Inglenook Fen - Ten Mile Dunes Natural Preserve, MacKerricher State Park
5. Project Sponsor Name & Address: California State Parks
Mendocino District
12301 N. Highway 1, Box 1
Mendocino, CA 95460
6. General Plan Designation: Natural Preserve
7. Zoning: Open Space (OS) (Mendocino County General Plan Coastal Element Nov. 5, 1985, Revised March 11, 1991)
8. Description of Project:
The proposed project would complete the following actions in the Inglenook Fen – Ten Mile Dune Natural Preserve to restore ecosystem processes that are crucial to the viability of endangered species and their habitats. The following summarizes the proposed work:
 - Remove three segments of abandoned asphalt roadway and a portion of or all underlying rock base totaling 2.7 miles (4.3 km). Some portions of the road will remain intact to protect sensitive resources.
 - Remove up to three 5-foot diameter (1.5 meter) culverts and restore the stream bed, bank, and channel to a natural condition by removing fill material, grading unnatural banks, and facilitate the reestablishment of native plants.
 - Treat approximately 17 acres (6.9 ha) of previously untreated European beachgrass with an integrated pest management approach that includes hand removal and herbicide.
 - Retreat approximately 38 acres (15.4 ha) of European beachgrass and other nonnative weeds with hand removal and herbicide.
 - Remove non-native trees, shrubs, and European beachgrass, and establish native conifers where appropriate in a 7 acre (2.8 ha) area of back dunes.
 - Reestablish federally and state-listed threatened and endangered species and other native plants into suitable habitat by direct seeding, transplanting, or installation of cuttings.
 - Remove iceplant in select areas to increase habitat for the federally listed Howell's spineflower.
9. Surrounding Land Uses & Setting: Refer to Chapter 3 of this document (Section IX, Land Use Planning)
10. Approval Required from Other Public Agencies: Refer to Chapter 2, Section 2.9

1. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agricultural Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning |
| <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | <input checked="" type="checkbox"/> None |

DETERMINATION

On the basis of this initial evaluation:

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

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

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

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

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

Renée Pasquinelli
Environmental Coordinator

Date

EVALUATION OF ENVIRONMENTAL IMPACTS

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

ENVIRONMENTAL ISSUES

I. AESTHETICS.

ENVIRONMENTAL SETTING

MacKerricher State Park is one of California's largest and finest coastal parks. It contains many varied natural communities including extensive dunes, unique wetland habitats, and a relatively undisturbed marine environment typical of the northern California coast. Important scientific resources in the Park range from several sensitive and rare plant and animal species to Inglenook Fen, the only coastal fen in California. In addition, MacKerricher's cultural resources chronicle Native American activities in the area dating back more than 2,000 years.

The Inglenook Fen-Ten Mile Dunes Natural Preserve is located in the northern portion of MacKerricher State Park. The Preserve is bordered by the Ten Mile River and estuary to the north, with State Highway 1, a National Scenic Byway, and rural residential properties forming the eastern boundary. To the south lie the more developed recreational areas of MacKerricher State Park and the adjacent community of Cleone. The western edge of the Preserve is shared with the Pacific Ocean, providing an uninterrupted vista of the sea and sky. Above the beach, remnants of an old haul road bisect the foredunes of the Preserve from north to south, with some sections of asphalt intact while other areas are severely eroded or washed away entirely.

Between highway and ocean an extensive dune system covers more than 1,200 acres, one of the major scenic attractions and prominent features of the Park. The sweeping vista of undulating dunes formed at the ocean's edge and sculpted by relentless wind is a visual opportunity found in few other places in the state. Hidden among the ridges and swales are pockets of life where highly specialized plants take hold in the shifting sands, including the unique flora of the Inglenook Fen, a relic plant community from the last ice age. In spring and summer, low mats of vegetation carpet the dunes with delicate and colorful blooms. Meandering tracks of insects, birds, small mammals and larger predators provide further proof that this harsh environment supports a rich diversity of life. European beachgrass, an introduced and non-native plant species, has invaded much of the dune system, altering dune formation and crowding out native plant and animal species within the Preserve.

Several perennial creeks flow from upland areas across the dunes to the ocean. Inglenook Creek and Fen Creek support plant and animal communities that wouldn't be found in the dune system otherwise. Willow and other riparian plants line the creek banks, creating a green ribbon of life in sharp contrast with the pale sand of the surrounding dunes. Small birds move through the thickets of these riparian corridors and fill the air with their calls and song. The creeks rise and fall with the seasons, sometimes rushing towards the sea after a winter storm to carve a new path across the sand. At other times the streams flow quietly to the beach, where summer sand bars build up to block their flow, creating small lagoons for resting and foraging shorebirds, wading birds and waterfowl.

For those seeking a different kind of park experience, the Preserve offers the chance to explore a rare and unique landscape along California's coast. Other than the remnant road and occasional wooden post from old fence lines, few signs of modern life are apparent. A four-mile (6.4 km) expanse of sandy beach runs along the western edge of the Preserve. Opportunities to enjoy the ocean, beach and dunes in solitude attract visitors to this relatively undisturbed and more remote area of MacKerricher State Park. Conditions change rapidly along the shore but the rewards are great for those visitors with a sense of adventure. Here, time is marked by the seasons and tides in an ever-changing and dynamic

environment of blowing wind, shifting sands and crashing surf. Wildlife abounds both onshore and offshore. Shorebirds follow retreating waves to forage for sand-dwelling invertebrates while osprey and brown pelicans dive for fish beyond the breakers. Curious harbor seals surface to inspect the scene then disappear beneath the blue-green water. The ever-present gulls circle and call overhead. Depending on the season, visitors may view whale spouts and fishing boats on the horizon, or an advancing wall of fog moving inland to envelop the landscape in mist.

WOULD THE PROJECT:	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) The proposed project would temporarily affect the scenic qualities of the dunes at the immediate project site. Construction equipment, materials and crew activities have the potential to disrupt visitors' enjoyment of the natural landscape for the duration of the project. However, upon completion this project would benefit the aesthetic environment of the dunes by removing a degraded and unsightly remnant road, eliminating invasive beachgrass, and returning the dune habitat to a more natural condition. With the barrier of the road removed and elimination of non-native beachgrass, natural dune processes would return and native plant communities would become reestablished, resulting in an improved aesthetic experience. Due to the temporary nature of the work, the project would have a less than significant impact.
- b) Highway 1 is a designated National Scenic Byway, but is not an officially designated State Scenic Highway in this portion of Mendocino County. Highway 1 runs adjacent to some portions of the Inglenook Fen-Ten Mile Dunes Preserve on its eastern boundary, but the majority of the project site would not be visible from the highway, including vegetation work in the backdune area. The project proposes to remove the remnant haul road and restore natural processes to the dune ecosystem. The proposed project would not damage any scenic resources or historic buildings within a state scenic highway and would therefore have no impact.
- c) As with any construction project, there would be some temporary decrease in the visual appeal of the area immediately affected by the work being performed. The presence of construction vehicles and other support equipment and associated emissions and noise may make it difficult for visitors to appreciate and experience the visual character and quality of the project site and the surrounding landscape. However, the duration of the work would be limited, the immediate project area would be temporarily closed to visitors, thus limiting exposure to unsightly construction activity, and visual impacts would be overshadowed by the aesthetic improvements and protection

of the resource that would be the end result. There would be no permanent or long-term degradation of the visual character of the site or its surroundings as a result of this project. Therefore, the impact from this project would be less than significant.

- d) Lighting is not an element of this project and no new light sources would be introduced into the landscape. All construction work would be limited to daylight hours, eliminating the need for work lights. The proposed project would have no impact.

II. AGRICULTURAL AND FOREST RESOURCES.

ENVIRONMENTAL SETTING

The proposed project is located in the Inglenook Fen-Ten Mile Dunes Natural Preserve within the northern section of MacKerricher State Park. The land within MacKerricher State Park is zoned open space. None of the land within or immediately adjacent to MacKerricher SP is zoned as forest land or timberland production. The proposed project area contains no land zoned for agriculture or in agricultural use, forest land or timberland production. None of the land within MacKerricher SP is zoned for agricultural use, enrolled under the Williamson Act (California Land Conservation Act of 1965), or included in any of the Important Farmland categories, as delineated by the California Department of Conservation, under the Farmland Mapping and Monitoring Program (FMMP). Private property located on the east side of Highway 1 at the junction of Little Valley Road is enrolled under a Williamson Act contract. The project site and the Preserve property boundary are not contiguous with this land.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT*:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code §4526), or timberland zoned Timberland Production (as defined by government Code § 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

* In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997), prepared by the California Department of Conservation as an optional model for use in assessing impacts on agricultural and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

DISCUSSION

- a) As noted in the Environmental Setting above, MacKerricher SP does not support any agricultural operations. All work proposed as part of this project in the Inglenook Fen -Ten Mile Dunes Natural Preserve would be confined within park boundaries. No land adjoining the park is zoned as

agricultural land or used for agricultural purposes, as defined by the United States Department of Agriculture land inventory and monitoring criteria (modified for California). The Dune Rehabilitation Project would not cause the conversion of any prime, unique or important farmlands to non-agricultural use.

- b) This project would have no effect on any category of California Farmland and would not conflict with any existing zoning for agricultural use or Williamson Act contract. Private property located east of the Preserve boundary is enrolled under a Williamson Act contract, but the project site is located entirely within the boundaries of MacKerricher State Park at least 0.3 miles (0.5 km) from this property and would present no conflicts with its zoning or use. Therefore, no impact would result.
- c) This project would not conflict with any existing zoning or cause rezoning of forest land or timberland. No impact would result.
- d) No aspect of this project would result in the loss of forest land or conversion of forest land to non-forest use. No impact would result.
- e) The Dune Rehabilitation Project would not cause changes to the existing environment that would result in the conversion of any farmlands or forest land to non-agricultural or non-forest uses. Therefore, no impact would result.

III. AIR QUALITY.

ENVIRONMENTAL SETTING

MacKerricher SP is in Mendocino County, part of the North Coast Air Basin (Basin), the Mendocino County Air Quality Management District (MCAQMD), and the U.S. Environmental Protection Agency Region IX. Ocean winds, moderate levels of highway traffic, and a small industrial base result in relatively clean air in the vicinity of the Park. According to the MCAQMD, the entirety of the Basin has been designated as “attainment” for all criteria pollutants including; Ozone, CO₂, NO₂, NO_x, SO₂, NH₃ and Reactive Organic Gases (ROG), under federal Clean Air Act guidelines. However, the MCAQMD is in “non-attainment”, having not met the state standard under the California Clean Air Act for a specified pollutant, particulate matter sized less than 10 microns (PM₁₀). In accordance with state non-attainment status for PM₁₀, MCAQMD has created the required Particulate Matter Attainment Plan to work toward attainment. The final draft of 2005 sets a target of “reasonable improvement” or a 5% reduction in PM₁₀ emissions per year as a goal until attainment is reached. In June of 2010 the MCAQMD recommended that project planning agencies follow the Bay Area Air Quality Management District (BAAQMD) CEQA guideline thresholds to evaluate new projects.

The MCAQMD has high levels of biogenic volatile organic compounds (VOC) many of which are ROG which through complex chemical reactions with ozone (O₃) result in PM₁₀ creation. Higher rates of PM₁₀ in the coastal Fort Bragg area, relative to the rest of the MCAQMD, are attributable to geogenic conditions of salt released into the air from the ocean. Additional PM₁₀ sources are anthropogenic, including more hazardous particle matter less than 2.5 microns in size (PM_{2.5}) often associated with combustion engines. Wood smoke also contains PM_{2.5} which tends to bind into PM₁₀ after some time. As of 2009 Mendocino County had no high emitting facilities for any criteria pollutants (ARB, 2009).

PM₁₀ levels fluctuate in the coastal area of the MCAQMD seasonally relative to temperature and rainfall. Highest levels of PM₁₀ are registered in the late fall as temperatures dip and seasonal rains have yet begun. The increase in woodstove use, fugitive dust and lifting of burn bans are all anthropogenic factors adding to the heightened levels. Once winter rains begin, fugitive dust diminishes, lowering PM₁₀ levels. The MCAQMD has seen a decrease in the PM₁₀ levels from the late 1980's through the 1990's to the early 2000's, attributable to increased rain amounts, improvements in emissions and efficiency of combustion engines, reductions in forest industry activities, enforcement of district outdoor burning policies and woodstove emission standards implementation.

In 2008 Northern California wildfires elevated PM₁₀ and PM_{2.5} to levels exceeding the National Ambient Air Quality Standards (NAAQS) for much of the summer throughout the MCAQMD. The California Air Resources Board appealed to have particulate levels measured at monitors influenced by the resulting smoke excluded from federal and state standards due to an “Exceptional Event”. Other recent wildfire events dramatically elevating PM₁₀ and PM_{2.5} levels for Mendocino County include the Biscuit Fire in southern Oregon in 2002 and the Shasta Fire in 1999.

The Inglenook Fen – Ten Mile Dunes Natural Preserve is bordered by the Pacific Ocean on the west side and small residential neighborhoods which lie between the eastern edge of the preserve and Highway One. The prevailing winds carry salt spray, bits of sea plant and animal

material, and gases created during decomposition, as well as small sand particles northwest to southeast (the process creating the dunes). Geogenic and biogenic processes are the primary creators of compounds contributing to criteria pollutants during prevailing winds. The residential neighborhoods to the northeast, east and southeast contribute compounds creating criteria pollutants through the use of wood burning stoves, burning carbon based fuels, and operating primarily light duty combustion engines.

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

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

DISCUSSION

- a) Work proposed by this project, and any associated emissions, would not conflict with or obstruct the implementation of any applicable air quality management plan for MCAQMD. All work would fall within the Air Quality Management District Large Grading Project (207.27) permit guidelines. Appropriate thresholds recommended in the BAAQMD would be evaluated within the permitted guidelines. Therefore, the project would have no impact.
- b-c) The project would implement guidelines stated within the 207.27 permit to minimize criteria pollutant creating emissions to avoid substantial increases in PM₁₀. Current trends for Mendocino County and the City of Fort Bragg indicate average levels of both PM₁₀ and PM_{2.5} are no longer decreasing, but are not trending toward an increase either, except for periodic wildfires during summer months. While PM_{2.5} levels for the county (measured in Ukiah) remain below exceedance for the county, PM₁₀ levels measured in Fort Bragg remain in exceedance, contributing to the non-attainment status for the district. The California Air Resources Board’s 2009 Almanac estimates for Mendocino County suggest PM₁₀ levels will creep slightly upwards over the next decade while PM_{2.5} remain at current

levels (ARB Almanac 2009 , Appendix A). The MCAQMD indicates dust from unpaved and paved roads is a major contributor to county PM₁₀ and PM_{2.5} levels, as direct sources of fugitive dust. Geogenic factors such as salt spray and wind-blown sand particles currently contribute to air quality conditions at the project site. Project activities would include disturbance and removal of rock and gravel, as well as removal and redistribution of sand, but these activities would be temporary and impacts would be short-term. Fugitive dust associated with these activities would be distributed across the dunes by prevailing winds, which mimics natural processes in a dune system.

Table 3.AIR-01: Mendocino County 2010 Estimated Non-attainment Compliance Particulate Matter Pollutant and Modeled Project related Particulate Emissions

Mendocino County Estimated Emissions			Project Associated Estimated Emissions	
Particulate Pollutant	2010 Average in tons		Total (tons) Particulate Emissions ₂	Percent of Annual Estimates
	Daily ₁	Annual		
PM ¹⁰	21	7665	0.81	0.01057%
PM ^{2.5}	5	1825	0.14	0.00767%

₁ ARB Almanac 2009 – Appendix A: County Level Emissions and Air Quality by Air Basin

₂ California Emissions Estimation Modeler (CalEEMod) Version 2011.1 February 2011

Standard Project Requirements implemented during the project would minimize generating compounds contributing to criteria pollutants. Post-project conditions would result in a net loss of paved and unpaved roadway available to create PM₁₀ and PM_{2.5} pollutants. Therefore the project would have a less than significant negative impact on air quality standards, either existing or projected.

- d-e) The immediate area of all project activities, areas with the highest likelihood of pollutant emission concentrations, would be closed to the general public. However, areas of the Inglenook Fen Creek – Ten Mile Dunes Natural Preserve adjacent to the project would remain open and accessible to the general public, as well as the rest of MacKerricher State Park. Notification of project activities would be posted at the primary access points for the Preserve.

The majority of the project would be concentrated along the remnant haul road and remote from residential and commercial areas. (See [Appendix A: Dune rehabilitation Map](#)) However, at the northern end of the Preserve the nearest residential area sits 0.12 mile (200 m) across the Ten Mile River from the project site and potential staging area. Sources of pollutants from this location would include emissions from vehicles and heavy equipment required to complete the project. Project vehicles and equipment would likely include the following: 1 excavator; 2 950-series front end loaders; 1 Caterpillar 416 backhoe; 3 to 5 off-highway dump trucks; 6 highway approved 10-wheel dump trucks; 2 D-6 tractors; 1 light-duty truck with 100-gallon fuel tank; up to 15 crew transport vehicles. Some minor changes in types of equipment may be needed depending on the contractor hired to complete the project. Not all vehicles and equipment would operate simultaneously within the Preserve. Most crew vehicles would be parked at the staging

area where crew members would transfer to project work vehicles. Some equipment would only be operating during certain stages of the project depending on the work being done. Other vehicles, such as the 10-wheel dump trucks, would be moving materials from the staging area below the Ten Mile River Bridge to a recycling facility chosen by the contractor or to a storage site on State Park property approximately 20 miles (32 km) south at Big River, and would not operate within the Preserve. On most days there would be four to six heavy equipment operators working on road removal, 3 to 5 dump trucks traveling from the removal site to the staging area below the bridge, and up to 6 highway approved dump trucks hauling materials away for recycling or disposal. Traffic on nearby Highway 1 at the Ten Mile River Bridge is a regular source of vehicle emissions in the same residential area.

In addition to the road removal, excavation work would be done to remove several culverts at Fen Creek and Inglenook Creek. The nearest residential areas to the Inglenook Creek crossing are within approximately 0.43 mile (700 m) to the east at Beal Lane and Ocean View Drive. At the Fen Creek crossing the nearest residence is approximately 0.62 mile (1000 m) to the east. Air quality would not likely be affected at this distance.

Part of the project includes treatment of European beachgrass and removal of non-native trees and shrubs in backdune areas. Some of these locations are within 160 to 375 feet (50 to 115 m) of adjacent private property. Project equipment would include chainsaws and all-terrain vehicles, but these project activities would be focused in small areas and short in duration.

The closest area hospital or healthcare facilities are over 4.4 miles (7 km) to the south in the city of Fort Bragg. Area public schools are over 4.4 miles (7 km) to the south in Fort Bragg and 6 miles (10 km) to the north in Westport. One private school operates on Highway One by Virgin Creek just over 2.5 miles (4 km) to the south-southeast.

During project activities there would be temporary increases in pollutants and odors associated with project vehicles and equipment. Application of guidelines under the 207.27 permit and implementation of Standard Project Requirements would minimize these impacts. All thresholds under guidelines from the BAAQMD would be met. Post-project conditions in the Preserve would have no net change in concentrations of pollutants or odors. The project would not subject sensitive receptors to substantial pollutant concentrations or substantial objectionable odors affecting a substantial number of people. The project would have a less than significant impact.

IV. BIOLOGICAL RESOURCES.

ENVIRONMENTAL SETTING

The 1285-acre Inglenook Fen-Ten Mile Dunes Natural Preserve (Preserve) was designated in 1995 in recognition of its regional and statewide significance and the need to protect its important natural resources. The State Park and Recreation Commission resolution establishing the Preserve (CSP 1995c) specifically distinguishes wetlands and riparian areas, a rare coastal dune ecosystem, the only remaining coastal fen in California, eight rare natural communities, and eight special plant species as the important elements. Home to many species of wildlife and an important stop-over for migratory birds, the Preserve provides USFWS-designated critical wintering and nesting habitat for the western snowy plover. The Preserve also supports two populations of federally endangered plant species.

The Preserve is bordered by the Pacific Ocean to the west and moderate to steep upland terraces to the east. The actively moving dunes extend northward for approximately four and a half miles from the coastal terraces near Ward Avenue to the Ten Mile River. Upland topography and vegetation are influential in halting sand movement inland, as is the bulk of sand accumulated and the dissipation of winds sufficient to move the sand.

Plant and animal species that inhabit the dunes are specially adapted to the dynamic system of moving sand and wind. Plants that grow within the permeable, blowing substrate are either short-lived or persist through the development of deep, extensive root systems. Vegetation patterns within the dunes are strongly correlated with dune morphology (Pickart 1998). Seedling establishment is variable depending upon the species and micro-environments to which the seeds are carried.

Animals that inhabit coastal dune habitats are subject to physical stresses that include sand movement, salt spray, temperature variability, wind, and disturbances such as storms. Their adaptations are mostly behavioral. Species such as western snowy plover shelter in depressions in the sand, in the coastal strand where they also forage and breed. Invertebrate species such as globose dune beetle and Ten Mile shoulderband snail complete their entire life cycle in the dune habitat. Open areas or low vegetation in dune areas can support ground-nesting species such as burrowing owl and northern harrier. The same areas may provide foraging opportunities for many other birds of prey that do not nest in the project area, such as American peregrine falcon, merlin, white-tailed kite, sharp-shinned hawk, and Cooper's hawk.

Osprey and California brown pelican are often observed diving for prey in the Ten Mile River or offshore, while purple martins have occasionally been seen catching insects or perching on vegetation west of the Ten Mile River Bridge. Inglenook Creek and Fen Creek provide aquatic and riparian habitat for a variety of species. Within or near the project area, potentially suitable habitat exists for amphibians such as northern red-legged frog and foothill yellow-legged frog, and reptiles such as western pond turtle. There is also potential for the occurrence of tidewater goby in the lower reaches of the creeks, though this small fish species has not been documented to occur there. The coastal strand provides potential areas for marine mammals to haul out; all marine mammals are protected by the Marine Mammal Protection Act.

Areas of riparian vegetation may support nesting by a host of migratory bird species, which are protected under the Migratory Bird Treaty Act.

The Inglenook Fen, which occurs between the southernmost and middle dune lobes, is an area of great biological significance. It is the southernmost in a series of fens extending from Alaska south to this area. It is the only known remaining coastal fen in California, containing a unique assemblage of plants

and insects representing a relict biotic community from the Pleistocene. Many species that occur here are rare or endemic.

FLORA

Non-Vegetated Land Surfaces

Non-vegetated land surfaces are asphalt and open sand areas within the project area that are vegetated less than or equal to approximately 5% (Table 3 Bio Flora 01).

Asphalt: Visible (unburied) road segments greater than approximately 43 ft² (4 m²) that are covered in asphalt are included in this category. Areas smaller than this were infrequent and did not significantly contribute to non-vegetated land surfaces. No other areas classified as “asphalt” occur outside of the road bed. This land cover class is proposed for removal throughout the entire project area, and since it has no sand or dune mat vegetation occurring on it, its removal will directly benefit the natural vegetation communities.

Open Sand: Vast unvegetated parabolic dunes, transverse dunes, sand sheets, and deflation plains where vegetation, typically dune mat and European beachgrass, is less than approximately 5% total cover comprises this cover class.

Table 3. BIO Flora–01: Non-Vegetated Land Surfaces

Non-Vegetated Land Surface	Acres	Hectares
Asphalt	3.1	1.29
Open Sand	261.14	105.68

Special Status Plants

For the purposes of this document, the definition of “special status plants” used by the California Department of Fish and Game (2011) is used here. They include all plant species that meet one or more of the following criteria:

- Listed or proposed for listing as threatened or endangered under ESA [Endangered Species Act] or candidates for possible future listing as threatened or endangered under the ESA (50 CFR §17.12).
- Listed or candidates for listing by the State of California as threatened or endangered under CESA [California Endangered Species Act] (Fish and Game Code §2050 *et seq.*). A species, subspecies, or variety of plant is endangered when the prospects of its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, disease, or other factors (Fish and Game Code §2062). A plant is threatened when it is likely to become endangered in the foreseeable future in the absence of special protection and management measures (Fish and Game Code §2067).
- Listed as rare under the California Native Plant Protection Act (Fish and Game Code §1900 *et seq.*). A plant is rare when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens (Fish and Game Code §1901).
- Meet the definition of rare or endangered under CEQA §15380(b) and (d). Species that may meet the definition of rare or endangered include the following:

- Species considered by the California Native Plant Society (CNPS) to be “rare, threatened or endangered in California” (Lists 1A, 1B and 2); [CNPS and the California Department of Fish and Game have replaced the “CNPS” designation with the “CRPR” or “California Rare Plant Rank.”]
- Species that may warrant consideration on the basis of local significance or recent biological information;
- Some species included on the California Natural Diversity Database’s (CNDDDB) *Special Plants, Bryophytes, and Lichens List* (California Department of Fish and Game 2010).
- Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA §15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). Examples include a species at the outer limits of its known range or a species occurring on an uncommon soil type.

A scoping list of plant species, subspecies, or varieties considered to be special status plants and that have the potential for occurrence in the project area was derived from the most recent “Special Vascular Plants, Bryophytes, and Lichens List” (CDFG 2011a), RareFind (CDFG 2011b), BIOS (CDFG 2011c), and the California Native Plant Society’s Online Inventory of Rare and Endangered Plants (CNPS 2011), and plants of local or regional significance not on any list (Appendix C: Special Status Plant Scoping List).

Surveys in areas potentially affected by proposed project activities for rare plants were conducted by CSP Natural Resources staff (Bill Maslach, Adam Hutchins, and Alison Cebula on different dates) on April 1, 5-7, May 5, June 10, 15, July 6, 8, 12, 13, 15, 21, 22, 25, and August 10, 2011. Surveys typically extended to approximately 200-400, with 100’ being the minimum distance, which typically corresponded to the first or second change in vegetation community away from the project area. Survey methodology followed California Department of Fish and Game’s “Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities” (DFG 2009).

Surveys for federally- or state-listed species (*Chorizanthe howellii* and *Erysimum menziesii* ssp. *menziesii*) that are potentially affected by the project activities were modified to include all occurrences throughout the Preserve. This extensive survey and mapping was conducted by USFWS (US Fish & Wildlife Service) and CSP to address impacts of the project on the special status plants occurring along the road relative to the extent of occurrences in the Preserve.

To aid in the identification of plants, the most recent compiled list of plant species occurring in the Preserve was used as reference (CSP 2007), (for additional reference see Sholars 2006). Additionally, CSP has documented many occurrences of rare plants occurring in and near the project area. All relevant mapping was used to aid in the relocation of plant occurrences.

The extent of the survey was throughout the entire project area (Appendix A: Dune Rehabilitation Map). A total of approximately 100 hours over 485 acres (196 ha) comprised the field investigations. During the field surveys all plants encountered were documented to produce a floristic inventory of the project site (Appendix A: Project Area Floristic Inventory). All special status plants were mapped (Appendix A: Special Status Plant Maps).

Special Status Plants

***Abronia umbellata* ssp. *breviflora* – Pink Sand-Verbena**

CRPR List 1B.1 - This species is endemic to the coastal strand and foredunes of Oregon and

California. As an annual or short-lived perennial, plants established behind the foredunes can persist for several years. Pink sand verbena has occurred in small numbers in the Ten Mile foredunes, but the occurrences were primarily observed to the south bank of the Ten Mile River near the mouth. During the past several years since the initial removal efforts of European beachgrass, pink sand verbena has been found in new areas of the foredunes and coastal strand.

Pink sand verbena occurs in two areas along the haul road where road removal activities will directly impact approximately 14 plants. Two plants, each in a different area, occur approximately 60 ft (18 m) from the road and may potentially be impacted by the road removal. Seed collection and direct seeding into suitable habitat areas, and the removal of weed infestations within 50 ft (15 m) of the road are proposed for mitigation (Appendix E: Mitigation).

***Angelica lucida* – Sea-Watch**

CRPR List 4.2 - This perennial herb is found in coastal scrub, often on rocky bluffs. Approximately 25 plants were found at the edge of the project boundary, approximately 100 ft (30.5 m) from the work area. No direct impacts from construction or indirect impacts from sand burial are anticipated due to the distance from the haul road.

***Chorizanthe howellii* – Howell's Spineflower (spineflower)**

CRPR 1B.2, Federally Endangered, California Threatened - This species is found in semi-stabilized soil in sand dunes, coastal bluffs and coastal prairies from the Ten Mile River southward to Glass Beach. Historical occurrences are documented from the Fort Bragg headlands north of Noyo River and the headlands in the vicinity of Jug Handle Creek. The northern portion of the Preserve represents the northernmost occupied habitat for the entire range of the species.

Throughout the Preserve, spineflower is often found along the edge of the haul road and in dune mat vegetation. The haul road edge provides suitable habitat for spineflower because the sand is stabilized by the rocks that comprise the road base. Dominant plants occurring in this habitat are *Bromus diandrus*, *Vulpia myuros*, *Medicago polymorpha*, *Rumex acetosella*, *Daucus pusillus*, *Polycarpon tetraphyllum*, *Melilotus indica*, *Erodium*, *Hypochaeris radicata*, and *Artemisia pycnocephala*. It was also weakly associated with areas of dead European beachgrass where *Plagiobothrys sp.* and *Gnaphalium sp.* dune sage and European beachgrass were dominant plants. In the dune mat alliance, spineflower is strongly associated with the *Artemisia pycnocephala* - *Poa douglasii* vegetation association where golden aster (*Heterotheca sessiliflora* ssp. *bolanderi*) is a dominant component of the plant cover.

Spineflower in the northern part of the Preserve has been documented by mapping stands with a GPS to approximately one-meter accuracy in 2001 and again in 2011. The total extent of the 2011 spineflower stands along the haul road and Ten Mile River area are approximately 2.8 times greater in area than the mapped 2001 occurrences (from 0.41 acre, 0.17 ha, in 2001 to 1.14 acre, 0.46 ha, in 2011). In the Inglebrook Creek area, the 2011 occupied habitat is approximately 4.6 times greater than was mapped in 2001 (from 0.028 acre, 0.011 ha, in 2001 to 0.13 acre, 0.05 ha, in 2011), (Appendix B: Comparison of Spineflower (*Chorizanthe howellii*) Mapped Occurrences, 2001 & 2011). For a short-lived annual species such as spineflower, population numbers and areas of occurrence can fluctuate widely between years, particularly in dynamic ecosystems. Weather patterns and sand movement can affect seed dispersal patterns, seedling survival, and seed production.

To assess the potential impacts of the project on the existing spineflower population, spineflower stands from the 2011 mapping effort were first sampled to estimate the total current population in the Preserve. From 425 sampled quadrats, the number of spineflower plants with a diameter greater than 0.28 in (7 mm) occurring in stands greater than 161 ft² (15 m²) was estimated to be approximately 1,040,500 ± 3,800 with 95% confidence. The estimated population was calculated by multiplying the mean number

of plants in a quadrat by the total area of mapped spineflower.

Since the dunes are a dynamic system, fluctuations in microhabitats are to be expected and are often unpredictable. Once the road, crossings, and non-native species are removed, some of the existing spineflower occurrences will be lost, while new habitat areas will develop and change over time. Precisely where these habitat areas emerge is difficult to predict. However, for the purposes of developing mitigation measures to enhance the expansion of spineflower occurrences, CSP estimated the percentage of the 2011 population directly or potentially impacted by overlaying the extent of project impacts and their buffers (50 ft, 15 m, from the edge of road base material removal) over the extent of occupied spineflower habitat. Based on this estimation, the project will directly impact approximately 22% of the population within the entire Preserve, and potentially 72%, of the northernmost extent of its range within the Preserve (between Inglenook Creek and the Ten Mile River). Mitigation measures, which include long-term monitoring to identify suitable habitat and direct seeding into these areas were developed to offset the negative impacts to stands of spineflower.

Although the road removal may impact individual plants, the eventual removal of the road surface will facilitate the emergence of new habitat for the species. The loss of spineflower stands will be minimized and mitigated by modifying the project design to retain key segments of stabilized road base, implementing sand storage exclusion zones, seeding suitable habitat where spineflower does not currently occur, removing iceplant and retreating European beachgrass in spineflower habitat, and surveying for and removing new weeds (Appendix E: Mitigation). Removing the asphalt and retaining key segments of the haul road rock base will minimize impacts to spineflower and provide new habitat immediately adjacent to spineflower stands. These stands will potentially provide a seed source for an increase in numbers and movement into dune swales on the leeward side of the haul road.

***Erysimum menziesii ssp. menziesii* – Menzies' Wallflower (wallflower)**

CRPR 1B.1, Federally Endangered, California Endangered - This species is found in sand dunes and sandy areas in coastal bluffs between the Ten Mile River and Pudding Creek. It occurs throughout the project area next to the haul road primarily in the Ten Mile River area, and near Inglenook and Fen Creeks. Most of the wallflower occurs away from the project site.

A study similar to that of the spineflower was undertaken to estimate the population size of wallflower in the Preserve from 440 1 x 20 m plots. Wallflower stands in the Preserve were mapped in 2004, 2009, and 2011, with the latter accounting for the most recent mapping, in and adjacent to the project area within the Preserve. Where wallflower was mapped in 2004 or 2009, the boundaries of the stands were checked in the field in 2011 and drawn to reflect current occupied habitat, which totaled 147.4 acres (59.7 ha). The estimated population was calculated by multiplying the mean number of plants in a quadrat by the total area of mapped wallflower, which resulted in 134,000 plants.

In addition to the population estimate, CSP conducted a total count of individual wallflower plants on both sides of the haul road and within 33 ft (10 m) of the edge of the asphalt, or approximate edge if it was buried. Polygons of these areas were digitized into the compiled 2011 map of wallflower polygons for later use in assessing numbers of plants potentially impacted. As proposed, the project could directly affect approximately 1,170 wallflower individuals or approximately 0.23 acres (0.09 ha) by crushing, uprooting, sand burial, or other means, and potentially affect 1.26 acres (0.51 ha) of wallflower either directly or indirectly by physical harm or weed infestations. Based on the 2011 population count and integrated mapping effort, all combined impacts do not affect greater than 1% of the area of occupied wallflower habitat in the Preserve.

Although the road removal may impact individual plants, the eventual removal of the road surface will

create habitat for the species. As described for spineflower, once the road, crossings, and non-native species are removed, some of the individual plants will be lost, while new habitat areas, in locations that are not easily predicted, will develop and change over time. Mitigation for impacts is included as part of the project by long-term monitoring to identify suitable habitats, direct seeding into appropriate habitat areas, improving wallflower habitat through iceplant removal, surveys for new weeds and their removal, and European beachgrass removal (Appendix E: Mitigation).

***Gilia millefoliata* – Dark-Eyed Gilia**

CRPR 1B - This species is found in sand dunes and in sandy areas in coastal bluff scrub and prairies. Plants are known to occur in or near the project area. A small occurrence of approximately 5 individuals occurs at least 125 ft (38.1 m) from the edge of the road-removal area. The occurrence is sufficiently far enough from the project activities and no impacts are expected.

***Horkelia marinensis* – Point Reyes Horkelia**

CRPR 1B.2 - This perennial herb is found in sandy coastal flats in coastal scrub and prairies. It is known to occur in several locations within and near the Preserve. One occurrence near the Ten Mile River approximately 250 ft (76 m) from the haul road was found during the survey. The location is downwind of the prevailing winds, but sufficiently far from the haul road, and is not expected to be impacted by the project. A previously documented occurrence at Inglenook Cr. approximately 45 ft. (14 m) east of the haul road was located during this survey. Although it occurs within a sand storage exclusion zone, which will be flagged, the horkelia will additionally be flagged to ensure avoidance. With the implementation of Specific Project Requirements, all plants will be avoided. Additionally, the implementation of surveys and the removal of new weeds as mitigation for other special status plants will ensure the area is not threatened by weeds that may result from the project.

***Oenothera wolfii* – Wolf's evening-primrose**

CRPR 1B.1 - This perennial herb grows in dune swales and partially stabilized areas in the dunes, primarily west of the paved haul road but adjacent to it in a few areas. Some stands may potentially be impacted by project activities, and one occurrence (< 100 plants) on the edge of Inglenook Creek downstream of the culvert will be impacted by the removal of the road bed and culvert. Direct seeding into suitable habitat and surveys for new weeds and their removal are proposed as mitigation measures (Appendix E: Mitigation).

Special-Status and Other Natural Communities

The California Department of Fish and Game defines special status natural communities (DFG 2009):

“Special status natural communities are communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. These communities may or may not contain special status species or their habitat. The most current version of the Department’s *List of California Terrestrial Natural Communities* indicates which natural communities are of special status given the current state of the California classification.

Most types of wetlands and riparian communities are considered special status natural communities due to their limited distribution in California. These natural communities often contain special status plants such as those described above. These protocols [for mapping natural plant communities] may be used in conjunction with protocols formulated by other agencies, for example, those developed by the U.S. Army Corps of Engineers to delineate jurisdictional wetlands or by the U.S. Fish and Wildlife Service to survey for the presence of special status plants.”

A scoping list of rare natural communities with the potential for occurrence in the project area was derived from a state-wide list (DFG 2010) (Appendix C: Natural Communities Scoping List). Natural communities were identified in the field using the “Manual of California Vegetation, 2nd ed.” (Sawyer et al. 2009) and mapped to associations where possible. Vegetation communities were mapped by using a combination of walking the perimeter with a GPS and digitizing from aerial photographs (USDA 2010), (Appendix A: Natural Communities Maps). A list and description of vegetation communities documented in the project area follows (Table 3. BIO Flora–02).

Table 3. BIO Flora–02: List of Natural Communities in the Project Area. Note: Natural communities were mapped at the alliance level when there was not an association that best described the vegetation.

Alliance	Association	Rank	Acres	Hectares
<i>Ammophila arenaria</i> (European beachgrass swards) Semi-natural Stands	<i>Ammophila arenaria</i>	None	68.44	27.71
<i>Holcus lanatus</i> - <i>Anthoxanthum odoratum</i> (Common velvet grass - sweet vernal grass meadows) Semi-natural Stands	<i>Holcus lanatus</i> - <i>Anthoxanthum odoratum</i>	None	2.10	0.85
<i>Eucalyptus (globulus, camaldulensis)</i> (Eucalyptus groves) Semi-natural Stands	-	None	14.80	5.99
<i>Scirpus microcarpus</i> (Small-fruited bulrush marsh) Alliance	<i>Scirpus microcarpus</i>	G4 S2	1.37	0.55
<i>Carex obnupta</i> (Slough sedge swards) Alliance	<i>Carex obnupta</i>	G4 S3	3.61	1.46
<i>Argentina egedii</i> (Pacific silverweed marshes) Alliance	<i>Argentina egedii</i>	G4 S2	0.25	0.10
<i>Juncus lescurii</i> (Salt rush swales) Alliance	<i>Juncus lescurii</i>	G3 S2?	38.55	15.61
<i>Leymus mollis</i> (Sea lyme grass patches) Alliance	<i>Leymus mollis</i> - <i>Abronia latifolia</i> - (<i>Cakile</i> sp.)	G4 S2	0.37	0.15
<i>Abronia latifolia</i> - <i>Ambrosia chamissonis</i> (Dune mat) Alliance (including Associations)		G3 S3	247.71	100.25
<i>Abronia latifolia</i> - <i>Ambrosia chamissonis</i> (Dune mat) Alliance (vegetation that met the broader definition of Alliance, but had no appropriate Association description)		-	199.64	80.79
	<i>Artemisia pycnocephala</i> - <i>Poa douglasii</i>	-	44.19	17.89
	<i>Artemisia pycnocephala</i> - <i>Calystegia soldanella</i>	-	3.88	1.57
<i>Garrya elliptica</i> (Coastal silk tassel scrub) Provisional Alliance	-	G3? S3?	2.25	0.91
<i>Morella californica</i> (Wax myrtle scrub) Alliance	<i>Morella californica</i>	G3 S3	2.44	0.99
<i>Salix hookeriana</i> (Coastal dune willow thickets) Alliance	<i>Salix hookeriana</i>	G4 S3	9.10	3.68
<i>Salix sitchensis</i> (Sitka willow thickets) Provisional Alliance	-	G4 S3?	13.62	5.51
<i>Pinus contorta</i> var. <i>contorta</i> (Beach pine forest) Alliance	<i>Pinus contorta</i> var. <i>contorta</i>	G5 S3	0.49	0.20
<i>Pinus muricata</i> (Bishop pine forest) Alliance	-	G3 S3	0.52	0.21

Other (Non Special Status) Natural Communities

European beachgrass swards *Ammophila arenaria* (European beachgrass swards) Semi-natural Stands [nonnative]: This class includes vegetation where European beachgrass had the dominant relative cover in the herbaceous layer and where European beachgrass had been previously removed. Few other plant species grow in stands that have not been treated with herbicide. Where dead European beachgrass occurs and eventually succeeds to dune mat, cudweed (*Gnaphalium* spp.) grows as an early successional species. It is restricted to the dead stands of European beachgrass that were treated with herbicide over the past several years. The vegetation is primarily comprised of dead European beachgrass, everlasting cudweed (*Gnaphalium stramineum*) and marsh cudweed (*Gnaphalium palustre*), popcorn flower (*Plagiobothrys* sp.), and secondarily Australian fireweed (*Erechtites minima*) and sow thistle (*Sonchus oleraceus*).

A comparison of the extent of European beachgrass made from aerial photograph interpretation shows that European beachgrass spread from approximately 8 acres (3.2 ha) in 1975 to approximately 119 acres (48.2 ha) in 2009 (Appendix A: Comparison of European Beachgrass Infestation from Aerial Photo Interpretation – 1975 & 2009). Its expansion in the Preserve is also evident by visually comparing oblique aerial photographs taken approximately 25 years apart (Appendix B: Comparison of European Beachgrass Infestation from Oblique Aerial Photos, 1979 & 2005).

Once established in the foredunes of a dune system, European beachgrass stabilizes sand with its long rhizomes and densely tufted leaf blades. Growth is stimulated by accumulating sand at the base of the plant. This repeated cycle of accumulated sand and stimulated growth causes foredunes to become steeper and taller. Furthermore, waves from winter storms carve at the foredune, resulting in steep cliff faces (Figure 3. BIO Flora-01), (Wiedemann & Pickart 1996). The effect of European beachgrass on the dune topography ultimately affects the federally endangered western snowy plover by minimizing or eliminating the bird's nesting habitat. A comparison of photographs of the Ten Mile foredunes from pre-1980 (actual date unknown, but possibly 1940's-1960's) and 2011 shows an absence of European beachgrass in the photo taken earlier; a low-profile foredune where waves would have easily washed across the haul road is evident (Figure 3. BIO Flora-02). The more recent photo shows dune mat vegetation now becoming established in the tall foredunes where European beachgrass was the dominant plant cover until it was removed through recent restoration efforts.

The removal of this weed through this project will result in a net gain of dune mat vegetation and will offset project impacts to dune mat vegetation. (See "Project Implementation" for more information on treatment of European beachgrass.)



Figure 3. BIO Flora-01: Wave-cut Steepened Foredunes with European Beachgrass, Ten Mile Dunes, 2001.



Figure 3. BIO Flora-02: Comparison of Foredunes, Before 1980 (left) and 2011 (right). Historic photo printed with permission from the collection of the Fort Bragg – Mendocino Coast Historical Society.

Common velvet grass - sweet vernal grass meadows (*Holcus lanatus* - *Anthoxanthum odoratum*) **Semi-natural Stands** [nonnative]: Two meadows of velvet grass and sweet vernal grass occur near the project area. These types of meadows usually have had some level of grazing in the past and they are often succeeding to shrubs and conifers. This vegetation community is not sensitive and no impacts will occur.

Eucalyptus groves (*Eucalyptus globulus*) **Semi-natural Stands**[nonnative]: A large stand of eucalyptus occurs on the eastern edge of the northernmost dune lobe, mostly on private property. Eucalyptus saplings may be removed on the western edge of the stand but CSP proposes no treatment to the mature trees. No impact to this plant community will occur.

Special Status Natural Communities

***Scirpus microcarpus* (Small-fruited bulrush marsh) Alliance:** This vegetation is comprised of stands of small-fruited bulrush and three-square bulrush (*Schoenoplectus pungens*). The densest stand of small-fruited bulrush occurs on the north bank of Inglenook Creek downstream of the culvert. It is less tolerant of saltwater than three-square bulrush and is usually found in freshwater marshes. Three-square bulrush forms nearly monodominant stands in small brackish marshes in MacKerricher State Park and likely throughout the coastal region of Mendocino County. The proportion of bulrush and three-square bulrush fluctuates during drying events and tidal and stream flooding. Growing in shallow waters, bulrushes help trap and bind mucky sediment in coastal marshes.

Some temporary impacts (~ 0.08 acres, 0.03 ha) to this community may occur during the removal of culverts; however, the removal of the road prism and culvert will create more suitable habitat areas for bulrush to recolonize, thus resulting in an increase in this natural plant community. In addition to the removal of unnatural features, implementation of Standard and Specific Project Requirements BIO 2a and BIO 2b will ensure that temporary impacts to bulrush marsh will remain at a less than significant level.

***Carex obnupta* (Slough sedge swards) Alliance:** Slough sedge is the dominant plant of the freshwater marsh upstream of the culvert in Fen Creek. A small patch occurs near the culvert outlet where brackish water is probably restricted. Project activities could temporarily impact 0.01 acres (0.004 ha). However, once the road and culverts are removed, slough sedge will naturally recolonize suitable habitat areas and the acreage of slough sedge swards will increase. The removal of the culvert, in addition to implementation of Standard and Specific Project Requirements BIO 2a, BIO 2b, BIO 3a, and BIO 3b will ensure that temporary impacts to slough sedge swards will remain at a less than significant level.

***Argentina egedii* (Pacific silverweed marshes) Alliance:** Pacific silverweed occurs in the Fen Creek marsh where it comprises part of the wetland vegetation. It is codominant with slough sedge, Pacific oenanthe, and wild mint (*Mentha arvensis*) in the freshwater marsh upstream of the culvert and codominant with three-square bulrush in the brackish area of the marsh, downstream of the culvert.

Some temporary impacts (0.03 acres, 0.01 ha) may occur during culvert removal; however, this removal will increase habitat for the plant community and once the culvert and haul road are removed, Pacific silverweed will naturally recolonize the resultant suitable habitat areas. In addition, the implementation of Standard and Specific Project Requirements BIO 2a, BIO 2b, BIO 3a, and BIO 3b will further ensure that temporary impacts to Pacific silverweed will remain at a less than significant level.

***Juncus lescurii* (Salt rush swales) Alliance:** This vegetation community is typically located in

stabilized dune hollows and swales that are regularly flooded or close enough to the water table to support hydrophytic (wetland) vegetation. Where the dune swales are more stabilized, vegetation succession tends towards sparse stands of coyote brush (*Baccharis pilularis*) and wax-myrtle (*Morella californica*) intermixed with salt rush.

The rush that comprises this vegetation community was keyed as *J. lescurii*; however Sawyer et al. (2009) describe its ecology as occupying the upper edge of salt marshes, while *J. breweri* occupies dune swales. This difference in ecology may be from a misidentification of *J. lescurii* in the Preserve or in other dunes and marshes of California or it may be correctly identified and reflect a different ecological niche in coastal Mendocino County.

These rush swales are located inland of the haul road, mostly beyond 100 and 200 feet (30 – 60 m). However, in 2011 a small portion (0.07 acres, 0.03 ha) of salt rush swale was mapped within the 50 feet (15 m) buffer from the haul road. Dune movement is a natural dynamic process and once the road is removed, sand movement into existing dune swales may increase, while new swales will form in other areas. Salt rush swale enhancement will occur throughout the Preserve through iceplant and pampas grass monitoring and removal. Changes to the salt rush swales resulting from the road and culvert removal are considered to be part of the natural processes. In addition, the implementation of Standard and Specific Project Requirements BIO 2a and BIO 2b will ensure that temporary impacts to salt rush swales will remain at a less than significant level.

***Leymus mollis* (Sea lyme grass patches) Alliance:** Small stands of dune grass occur on the coastal strand and Ten Mile River estuary. The stands have a component of yellow sand verbena and sea rocket and were classified as the *Leymus mollis* - *Abronia latifolia* - (*Cakile* sp.) association.

This vegetation community has increased after the removal of European beachgrass. No impact to dune grass patches will occur as a result of the proposed project.

***Abronia latifolia* - *Ambrosia chamissonis* (Dune mat) Alliance:** Dominant plant species that comprise this dynamic vegetation community are dune sage, yellow sand-verbena, beach bur, sand-dune blue grass, and beach morning-glory. This is the most prominent vegetation community throughout the Ten Mile dune system, although its actual acreage fluctuates throughout time with the natural movement of sand and maritime influences. Dune mat supports several special-status species: Menzies' wallflower, Howell's spineflower, dark-eyed Gilia, and pink sand-verbena. In areas where European beachgrass has been removed from the foredunes, dune sage, beach bur, and yellow sand-verbena have become established. Where the removal of European beachgrass has caused sand to become mobile and move landward, peninsular-like extensions of dunes are often colonized by dune sage or beach morning-glory (Figure 3. BIO Flora–03: Sand Drift on Haul Road and Figure3. BIO Flora– 04: Dune Mat Vegetation Becoming Established on Haul Road).

Two vegetation associations were identified and mapped within the dune mat alliance: *Artemisia pycnocephala* - *Poa douglasii*, and *Artemisia pycnocephala* - *Calystegia soldanella*. All other dune mat consisting of an assemblage of plants that grew on the edge of the haul road in the stabilized soils overlying the railroad ballast rocks was mapped under the broader category of *Abronia latifolia* – *Ambrosia chamissonis* alliance. The assemblage of dominant plants of the broader alliance that did not fit within other associations included mostly weedy nonnative plants: ripgut brome (*Bromus diandrus*), burclover (*Medicago polymorpha*), rattlesnake weed (*Daucus carota*), stork's bill (*Erodium cicutarium*), cat's ear (*Hypochaeris radicata*), four-leaved allseed (*Polycarpon tetraphyllum*), plantain (*Plantago lanceolata*), six weeks fescue (*Vulpia bromoides*) and European hairgrass (*Aira praecox*), although Howell's spineflower (*Chorizanthe howellii*) was also found here. Within the *Artemisia pycnocephala* - *Poa douglasii* association, usually on the upland edge of willow thickets, horsetail (*Equisetum hyemale*

ssp. *affine*) was dominant with over 50% relative cover in the herbaceous layer, and was codominant with wetland plants like salt rush, and upland plants like dune sage and blue grass. This plant association also supported Howell's spineflower habitat.



Figure 3. BIO Flora-03: Sand Drift on Haul Road. As sand moves on to the haul road, dune plants such as dune sage become established shortly after.



Figure 3. BIO Flora-04: Dune Mat Vegetation Becoming Established on Haul Road. Few areas of asphalt are exposed where sand drifts onto the road, and in these areas dune mat is subsequently becoming established.

The haul road is currently covered with sand and dune mat for approximately 30% of its length. Assuming average road width is 18 ft (5.5 m), approximately 0.12 acre, or 300 ft x 18 ft (0.05 hectare or 91.44 m x 5.5 m) of dune mat covers the road at the bend in the road near the Ten Mile River; approximately 0.83 acres, or 2000 ft x 18 ft (0.33 hectare or 609.6 m x 5.5 m) of dune mat covers the road north of Ingleenook Creek; and approximately 0.87 acres, or 2107 ft x 18 ft (0.35 hectare or 642.21 m x 5.5 m) covers the haul road south of Fen Creek. The total amount of exposed asphalt, or road surface, without sand or dune mat is 3.1 acres (1.29 ha).

Approximately 31.6 acres (12.8 ha) of dune mat on or within 50 ft (15 m) of the haul road will be, or has the potential to be temporarily impacted by the project when sand is removed from the road to allow for heavy equipment and vehicle access to the southern portions of the project area and to excavate portions of the exposed road and portions covered by sand. Also, the sand that is excavated off of the road will be stored and piled on dune mat vegetation that occurs along nearly the entire length of the haul road. However, the removal of the road will directly benefit this vegetation community by opening up new habitat that is currently displaced by asphalt and rock.. Treating European beachgrass in dune

mat areas, removing asphalt and rock, and implementing an ongoing plan of invasive weed removal, along with Standard and Specific Project Requirements BIO 2a and BIO 2b are elements of project implementation, thus the project is considered self-mitigating and temporary impacts to dune mat are considered less than significant.

***Garrya elliptica* (Coastal silk tassel scrub) Provisional Alliance:** A large stand of silk tassel mixed with pink-flowering current grows on the dune ridges above a dune swale dominated by bishop pine at the southern end of the Preserve. European beachgrass is proposed for treatment adjacent to the silk tassel; however, no impacts to the silk tassel shrubs would occur following Standard Project Requirements.

***Morella californica* (Wax myrtle scrub) Alliance:** Wax myrtle often grows among the willow thickets, sometimes as a codominant species, but it grows as a dominant species in rush swales in the southern portion of the Preserve. European beachgrass is proposed for treatment adjacent to the wax myrtle; however, no impacts to the silk tassel shrubs would occur following Standard Project Requirements.

***Salix hookeriana* (Coastal dune willow thickets) Alliance:** Dune willow stands occur throughout the project area in dune swales and along Fen and Inglenook Creeks. European beachgrass is proposed for treatment adjacent to the dune willow; however, treatment avoidance measures will be implemented to prevent impacts to these stands. Some dune willow growing up- and down-stream of the culverts proposed for removal will be directly impacted by the removal of the road fill (0.56 acres, 0.23 ha). However, the removal of the road berm and crossings, will create new habitat into which willow thickets will expand. In addition, the implementation of Standard and Specific Project Requirements BIO 2a and BIO 2b will further ensure that temporary impacts to Coastal dune willow thickets will remain at a less than significant level.

***Salix sitchensis* (Sitka willow thickets) Provisional Alliance:** Sitka willow, red alder and dune willow are dominant species that comprise the Sitka willow thickets. In the project area, they are found in Inglenook Creek in the swampy vegetation inland from the foredunes. European beachgrass is proposed for treatment adjacent to the dune willow; however, no impacts will occur following Standard and Specific Project Requirements BIO 2a and BIO 2b.

***Pinus contorta var. contorta* (Beach pine forest) Alliance:** A small stand of beach pine occurs on private property more than 100 ft (30 m) from the project area. No impacts to the vegetation will occur.

***Pinus muricata* (Bishop pine forest) Alliance:** A small stand of bishop pine mixed with tan oak, grand fir, and red-flowering currant grows in a dune swale surrounded by steep dunes. European beachgrass treatment will occur approximately 70 ft (21 m) from the stand; however no impacts to the stand will occur because the stand will not be entered.

Wetlands

CSP conducted a routine wetland delineation of the areas within and adjacent to the project area to locate wetlands that may be under the US Army Corps of Engineers (USACE) jurisdiction and/or the California Coastal Commission (CCC) jurisdiction (Appendix E: Wetland Delineation). Wetlands are defined by their presence of three parameters, even if only seasonally occurring: hydrology, hydric soils, and hydrophytic vegetation. The CCC defines wetlands more narrowly than the USACE by using only one of the three parameters for the habitat to qualify as a wetland. This one-parameter interpretation greatly increases the amount of wetlands within most project areas in the California Coastal Zone. For instance, in the project area, only 40% of the wetlands were three-parameter

USACE wetlands. The total area of wetlands in the survey area was 72.8 acres, (29.5 ha) - all were Coastal Act wetlands and of those, 28.3 (11.5) acres were mapped as USACE wetlands.

Within the survey area, 12 types of wetland vegetation types were recorded (Table 3. BIO Flora–03: Project Area Wetland Vegetation Types). The most common type of wetland was salt rush swales (*Juncus lescurii*) and willow stands of Hooker’s willow and Sitka willow (*Salix* spp.), which mostly occurred outside of the project area. The rush swales in the project area mostly occur just inland of the foredunes, and east of the haul road. Because these swales are topographically lower than the surrounding area, they are closer to the water table and support habitat for hydrophytic plants.

Table 3. BIO Flora–03: Project Area Wetland Vegetation Types.

Vegetation Types/Open Water	Number of Stands	USACE	CCC	Acres	Hectares
<i>Argentina egedii</i>	2	Yes	Yes	0.24	0.10
<i>Baccharis pilularis</i>	1	No	Yes	0.50	0.20
<i>Carex obnupta</i>	2	Yes	Yes	3.62	1.46
<i>Equisetum hyemale ssp. affine</i>	6	No	Yes	2.65	1.07
<i>Juncus lescurii</i>	148	No	Yes	38.52	15.59
<i>Morella californica</i>	6	No	Yes	2.44	0.99
<i>Pinus contorta var. contorta</i>	1	No	Yes	0.50	0.20
<i>Salix hookeriana</i>	13	Yes	Yes	9.08	3.68
<i>Salix sitchensis</i>	3	Yes	Yes	13.62	5.51
<i>Schoenoplectus pungens</i>	4	Yes	Yes	1.35	0.55
<i>Scirpus microcarpus</i>	3	Yes	Yes	0.11	0.05
Open Water	3	Yes	Yes	0.26	0.10
			Total	72.89	29.5

The extent of these wetland swales has changed over the past decades, some have shrunk or been covered with blowing sand while others have expanded. Figure 3. BIO Flora– 05: Comparison of 1975 and 2011 Aerial Photographs--Salt Rush Swales shows the areas of salt rush wetland swales in 1975 and in 2010. Where the water table is sufficiently high, and especially at the edges of a swale, salt rush is codominant with dune sage, an upland plant (Figure 3. BIO Flora– 06: Salt Rush Vegetation). The acreage of wetland swales are expected to continue to change as natural processes are restored by the removal of the haul road and European beachgrass.

Some of the larger dune swales support both small stands of salt rush and larger stands of Hooker’s willow, shore pine (*Pinus contorta ssp. contorta*), and wax myrtle (*Morella californica*). These usually occur next to the larger drainages such as Fen Creek, Inglenook Creek, and at the northern bend in the haul road near the Ten Mile River.

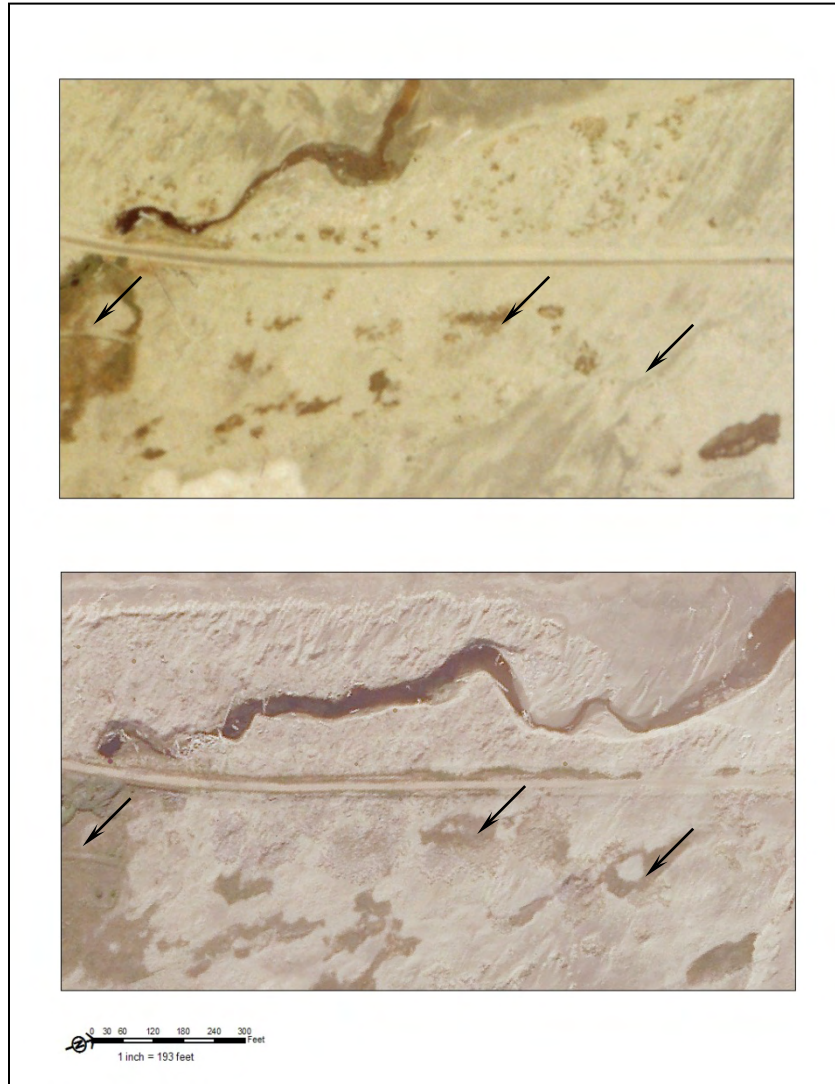


Figure 3. BIO Flora-05: Comparison of 1975 and 2011 Aerial Photographs--Salt Rush Swales (see arrows for comparison of locations)



Figure 3. BIO Flora–06: Salt Rush Vegetation. Salt rush and horsetails occur where the water table is sufficiently high to support these species in the dune mat environment.

Aside from the many isolated salt rush swales (addressed in Special Status Natural Communities above), Fen Creek and Inglenook Creek are the next largest wetlands in the project area. Both creeks have similar wetland vegetation that is primarily comprised of three-square bulrush in the creek channel, Pacific silverleaf in the creek bed edge, Hooker’s willow in the creek banks and swampy areas, and coyote brush and horsetail in the adjacent marginally wet upland areas.

Some temporary impacts to wetlands (approximately 0.68 acres, 0.28 ha) will occur during the removal of the road and culverts, but after project implementation, there will be a net gain in the area of wetlands. In addition to the removal of unnatural features, implementation of Standard and Specific Project Requirements 3a and 3b will ensure that wetland impacts remain at a less than significant impact.

FAUNA

Special Status Animal Species

For the purposes of this document, special-status animal species are defined as those that are legally protected or that are considered sensitive by federal, state, or local resource agencies and organizations. Specifically, this includes species listed as state or federally Threatened or Endangered,

those considered as candidates for listing as Threatened or Endangered, and species defined by CDFG as Species of Concern, Fully Protected, Protected or Watch Listed.

A query of the California Department of Fish and Game's Natural Diversity (CNDDDB) was conducted for sensitive animal species within the six USGS quads containing and surrounding the project area (Fort Bragg, Inglenook, Dutchman's Knoll, Noyo Hill, Mathison Peak and Mendocino). Additional occurrence information was obtained through the review of other current and historical records. Special status animal species that occur in the proposed project area are discussed in this section. All sensitive species and their habitats were evaluated for potential impacts by this project. Species not known to occur within the project area, but which appear in CNDDDB or other occurrence records for nearby areas, are addressed in Appendix C: Wildlife – Sensitive and Special Status (including CNDDDB).

Many common species are afforded protections under various federal and state laws and regulations. Every effort will be made to avoid negative impacts to all wildlife species. Restoration of native, naturally dynamic dune habitat is an important objective of the project. Any potential impacts to native animal species are likely to be minimal and temporary, while the benefits are expected to endure. Project Requirements have been developed and will be implemented to avoid, or reduce impacts to a less than significant level to the native fauna including the sensitive and special status species (see Biological Project Requirements BIO 4-8).

Invertebrates

Globose dune beetle (*Coelus globosus*) – This flightless burrowing beetle, a nocturnal detritivore, was once common in low beach foredunes from central to southern California as well as Baja California, Mexico. Globose dune beetles and their larvae are associated with yellow sand verbena (*Abronia maritima*), beach bur (*Ambrosia chamissonis*) sea rocket (*Cakile maritima*) and other common dune plant species, and are typically found within 2-4 inches (5-10 cm) beneath these plants. Adults, larvae and pupae spend most of their time in the sand. Globose dune beetle has been detected on Ten Mile beach. In 1978 the USFWS proposed listing this species as threatened or endangered, and identified the narrow strip of dune habitat on the west side of the haul road between the Ten Mile River and the mouth of Mill Creek as potential critical habitat. However, the species is not currently listed under either federal or state Endangered Species Acts. The Proposed Rule in the Federal Register for the listing of this beetle specified the spread of *Ammophila* as one of the factors leading to loss of its habitat, stating that “heavy foot traffic, development and the introduction (intentional or accidental) of European dune grass (under which it cannot survive) are the chief reasons why its preferred habitat has become so highly disturbed.” Globose dune beetles are not expected to occur within areas of dense *Ammophila*, and in other areas are expected to occur most frequently under the sand surface.

Ten Mile shoulderband snail (*Noyo intersessa*) – Likely endemic to the Ten Mile dunes, this species uses areas of coastal dune and coastal scrub vegetation. Little specific information on this snail is available, but based on the biology of related species, growth, copulation, and egg-laying most likely occur during the rainy season. There is documented occurrence of the Ten Mile shoulderband snail at the south end of Ten Mile beach. This species is not listed.

Vertebrates

Fish

Standard project requirements to protect water quality are detailed in the Hydrology and Water Quality

Project Requirements. The project area (including Fen Creek and Inglenook Creek) does not contain suitable habitat for Chinook salmon, Coho salmon or steelhead trout. Therefore, no impacts to these species are anticipated. However, potentially suitable habitat for Tidewater goby does occur. Biological Project Requirement BIO 6c describes measures to avoid potential impacts.

Tidewater goby (*Eucyclogobius newberryi*) - Tidewater goby is listed as endangered under the federal Endangered Species Act and as a DFG Species of Special Concern due to habitat loss and modification resulting from coastal development, channelization of habitat, diversion and alteration of water flows, and groundwater over-drafting. The small, benthic tidewater goby, endemic to California, inhabits brackish coastal waters including lagoons, estuaries, marshes and lower stream reaches where the water is fairly still but not stagnant. Tidewater goby occurs in the Ten Mile River, at the northern boundary of the Dune Preserve; Virgin Creek within MacKerricher State Park; and Pudding Creek on the southern boundary of the park.

USFWS conducted surveys at the Inglenook Fen in 2003 but did not detect or capture any tidewater gobies. Surveys conducted by DFG staff with assistance from CSP staff in 2011 failed to detect tidewater goby in the estuarine waters of either Inglenook or Fen Creek (during two survey efforts separated by one month), but did successfully capture and identify individuals in the Ten Mile River. While both Inglenook Creek and Fen Creek contain marginally suitable habitat near and downstream of the project area, tidewater goby presence is unlikely due to the low quality of the potential habitat. All USFWS-designated critical habitat for the species occurs in southern California.

Surveys for tidewater water goby will be conducted within 30 days prior to removal of culverts at Fen Creek and Inglenook Creek. Avoidance measures recommended by the USFWS will be implemented as a precaution to prevent potential impacts to tidewater goby and habitat.

Amphibians and Reptiles

There is the potential to disturb amphibians and reptiles during project work, especially where restoration activities will take place in wetland habitats. Project Requirements have been developed and will be implemented to avoid, or ensure impacts to amphibians and reptiles will remain at a less than significant level (see Biological Project Requirements BIO 5).

Western pond turtle (*Emys marmorata*) – Western pond turtle is a DFG Species of Special Concern. It is typically associated with permanent ponds, lakes, streams, or irrigation ditches, or permanent pools along intermittent streams, with some shallow-water habitat. This aquatic turtle is believed to leave the water to reproduce, to aestivate, and to overwinter, though activity patterns vary throughout its range and are poorly understood. A variety of aquatic habitats are utilized, usually consisting of vegetative cover and exposed basking sites such as logs or boulders. As opportunistic dietary generalists, pond turtles consume a variety of slow-moving aquatic invertebrates, carrion, and aquatic vegetation. Breeding typically occurs in April or May, and eggs are deposited in a shallow depression in May or June. Potential habitat occurs within the project area.

Northern red-legged frog (*Rana aurora*) – Northern red-legged frog is a DFG Species of Special Concern due to habitat degradation caused by coastal development, timber harvesting and grazing, as well as exotic predatory fishes in many coastal watersheds. The northern red-legged frog inhabits quiet pools of streams, marshes, and occasionally ponds throughout its California range in the Coast Ranges from Del Norte County to Mendocino County, usually below 4000 feet (1,220 m) elevation. Historical references document occurrence of Northern red-legged frog in the Inglenook Fen – Ten Mile Dune Preserve and it is likely to occur in the project area.

Foothill yellow-legged frog (*Rana boylei*) – Foothill yellow-legged frog, a highly aquatic species rarely encountered far from permanent, shallow, flowing water, is a DFG Species of Special Concern due to threats within its range such as water diversion, water-quality issues associated with logging and livestock grazing, and the introduction of exotic predatory aquatic fauna. It occurs in or near rocky streams in coastal scrub, wet meadow and valley-foothill riparian habitats. Breeding and egg-laying occur after spring flooding from mid-March to May for approximately two weeks. Foothill yellow-legged frogs prefer shorelines with extensive vegetation. Habitat used by adult frogs includes patches of dense grassy or shrubby vegetation that maintain substrate moisture, such as willow thickets and dense sedge swales. Foothill yellow-legged frog is historically known to occur in the Coastal Redwood Forest habitat within the Inglenook Fen – Ten Mile Dune Preserve, and may potentially be present in the project area.

Birds

Project activities have the potential to cause disturbance to birds that use the project area for foraging, roosting, or nesting. Project Requirements have been developed and will be implemented to avoid any potential impacts to bird species (see Biological Project Requirements BIO 7a-d).

Mendocino District maintains a 10(a)(1)(A) Recovery Permit for western snowy plover monitoring and conservation work. Some local staff members are listed on the permit and qualified to carry out required project surveys.

Cooper's hawk (*Accipiter cooperii*) – During nesting, Cooper's hawk is a DFG Watch Listed Species. It is associated with patchy, second-growth conifer and forested riparian habitats. These habitats are essential for hunting and nesting. Prey includes small birds, mammals, amphibians, and reptiles. Potential foraging habitat occurs in the project area.

Sharp-shinned hawk (*Accipiter striatus*) – During nesting, sharp-shinned hawk is a DFG Watch Listed Species. This riparian-associated species typically uses areas with dense forest stands near open areas: roosting in intermediate to high canopy forest, wintering in woodlands, and nesting near water in even-aged, single-layer forest canopy. Its typical prey consists mostly of birds but also includes mammals, insects, reptiles, and amphibians. Suitable foraging habitat potentially occurs in or near the project area.

Burrowing owl (*Athene cunicularia*) – Burrowing owl is designated as a USFWS Bird of Conservation Concern and a DFG Species of Special Concern. Burrowing owls can be found throughout California in areas of low and/or scattered vegetation with flat or low rolling topography. The owls use burrows excavated into flat ground or along slopes often dug by mammals or themselves. On occasion, owls will utilize structures buried or protruding from the ground which offer an accessible cavity, such as culverts, irrigation infrastructure, and woody or fibrous debris or buried rock. Numerous buried driftwood logs offer adequate substrate for burrows and ground level cavities used by burrowing owls. Several historical records exist for MacKerricher State Park, and within the Preserve, and individuals have recently been observed near the project area during winter.

Western snowy plover (*Charadrius alexandrinus nivosus*) – Western snowy plover is a federally listed threatened species, and a DFG Species of Special Concern. On the Pacific coast, western Snowy Plover occurs primarily on sandy beaches and estuarine areas. The primary causes of Snowy Plover population declines are habitat loss and degradation attributable to development, dune alteration and urbanization in areas of coastal habitats, the spread of invasive European beach grass (*Ammophila*

arenaria), depredation by native and non-native predators, and human-caused disturbance. Suitable habitat in the Inglewood Fen – Ten Mile Dune Preserve includes the entirety of the coastal strand, from the low tide line to the foredune where plovers are frequently observed. The entire beach and dune habitat of the Inglewood Fen – Ten Mile Dune Preserve has been designated as critical habitat by USFWS. The Mendocino District holds a 10(a)1(A) Recovery Permit for western snowy plover monitoring and management activities; project requirements detailed in Biological Requirements BIO 7d are conditions included in that permit.

Northern harrier (*Circus cyaneus*) – During breeding from April to September northern harrier is a DFG Species of Special Concern. Northern harriers utilize open areas with low vegetation, often near water or in wetlands, for foraging and hunting. Harriers construct nests of vegetative matter within ground vegetation concealed in grassy, marshy areas. Foraging occurs on the wing in low coursing flights over open areas, where harriers hunt for small rodents, reptiles or birds. Perching on the ground or atop low substrates is most common. Dune troughs and associated vegetation and hydrological accumulations create ample habitat for the northern harrier along the eastern portion of the haul road over much of the project area, and harriers are often observed hunting in the project area.

White-tailed kite (*Elanus leucurus*) – White-tailed kite is a DFG Fully Protected Species. Often found near agricultural areas, and in herbaceous stages of most habitats. Prey are primarily small diurnal mammals, but also include birds, reptiles, amphibians and insects. Trees with dense cover, especially near grassy, open foraging areas, are important for cover and nesting. Suitable foraging habitat occurs near the project area.

Merlin (*Falco columbarius*) – Although it does not breed in coastal California, the merlin is a frequently observed on the Mendocino coast during migration and winter months, September to May. During those months, it is a DFG Species of Special Concern. Merlin, a predator of small birds, prefers wide open areas of low and/or sparse vegetation, which allows it to chase down prey on the wing. Suitable foraging habitat occurs in and around the project area.

American peregrine falcon (*Falco peregrinus anatum*) – On the federal endangered Species list beginning in 1970, the peregrine falcon was delisted at the federal level due to population recovery in 1999, and in California in 2009. Peregrine falcon is currently designated as a Bird of Conservation Concern by USFWS and as Fully Protected by DFG. Peregrine falcon occurs in coastal areas throughout California year-round. The species is commonly found in areas proximate to water and often nests in aeries, unlined scrapes or ledges, along cliffs and bluffs; or utilizes a man-made vertical structures, such as a building or bridge; as well as nesting on the ground atop prominences or low hills in rare instances. Foraging habitat occurs in the project area.

Osprey (*Pandion haliaetus*) Documented to occur near the project area during its breeding season, osprey is a DFG Watch Listed Species during that time. Habitat requirements include mixed-conifer habitats near a large, fish-bearing body of water. Nest is a platform of sticks constructed on a large snag, dead-topped tree, cliffs, or manmade structures; occasionally nest may be on the ground. Prey is mostly fish, though mammals, birds, amphibians, reptiles, and invertebrates are also eaten.

California brown pelican (*Pelecanus occidentalis californicus*) A DFG fully protected species on its nesting colonies and communal roosts, brown pelican has been delisted from federal and state endangered species lists. Pelicans are observed in flight and resting on the shore at MacKerricher during post-breeding dispersal and migration periods, but do not breed on the Mendocino coast.

Purple martin (*Progne subis*) A DFG Species of Special Concern. Often found in open, multi-layered,

old-growth forest and woodland with snags during breeding season. Riparian, forest, and woodland areas are important for foraging on insects. Nesting occurs from April to August; nest sites are usually an old woodpecker cavity in a tall, isolated tree or snag. Purple martins have been observed near the Ten Mile River bridge to the north, and may forage in or near the project area, although no suitable nesting habitat occurs there

Mammals

Several species of mammal occur or have the potential to occur in the Ten Mile Dunes, including marine mammals that may temporarily use the beach for resting or may become stranded. However, no special status mammals are expected to occur within the project area, and no significant impacts are anticipated for any mammalian species. Project Requirements have been developed and will be implemented to avoid potential impacts to marine mammals if they are found (see Biological Project Requirements BIO 8).

<u>IMPACT</u>	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO</u>
WOULD THE PROJECT:				
a) Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a sensitive, candidate, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands, as defined by §404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Plan, or other approved local, regional, or state habitat conservation plan?

DISCUSSION

a) A primary goal of the road removal is the improvement of stream and dune habitat for, and protection of, rare, threatened, and endangered species and special-status vegetation communities. The project includes avoidance and mitigation measures that will be implemented to reduce the potential for adverse impacts to sensitive species to a less than significant level. The project will be conducted in compliance with all applicable State and Federal threatened and endangered species protection laws and regulations. The USFWS has provided assistance for the planning and implementation phases of the restoration work, specifically spineflower mitigation.

CSP will obtain a Streambed Alteration Agreement (SAA) from DFG for each watercourse crossing. Clean Water Act Section 401 and Section 404 permits will be obtained for restoration work that involves the removal of fill from stream crossings. If during the application for a 401 Clean Water Act permit, the permitting federal agency (USACE) determines that the project is likely to adversely affect a federally listed species, even temporarily, the agency will submit to the USFWS a request for formal consultation. CSP will work with USFWS to prepare a biological opinion addressing whether the proposed project will potentially result in jeopardy of the species. Additionally, CSP will work with the California Department of Fish and Game for appropriate permits regulating state listed plant species.

Despite best efforts to avoid any adverse impacts to sensitive species there is the potential for less-than-significant impacts with mitigation. The project is expected to benefit special status species over the long-term by enhancing and expanding habitat with the removal of the paved road, culvert crossings, and European beachgrass, features that hinder the natural processes of the dune environment.

The mitigation measures identified below will ensure that any adverse impacts to special status species resulting from project activities will be less than significant.

MITIGATION MEASURE BIOLOGICAL 1 – PLANTS

The proposed action could adversely affect the special status plant species described under “Environmental Setting”. However, as referenced above, the mitigation plan will include Mitigation Measure BIO 1, designed to reduce impacts to special status plants to a less than significant level.

MITIGATION MEASURES – BIO 1 (PLANTS)
<p><i>For all mitigation, refer to Appendix E: Mitigation.</i></p> <p>All special status plant species</p> <ul style="list-style-type: none">All areas within 50 ft (15 m) of the road will be searched for weeds, specifically iceplant, and will be removed for a 5 year period. <p><i>Abronia umbellata ssp. breviflora</i> – Pink Sand-Verbena</p> <ul style="list-style-type: none">A mitigation plan for direct seeding is proposed in areas where appropriate habitat is identified through long-term monitoring. Plants near the haul road that can be avoided will be flagged. Execution of the mitigation plan and avoidance

measure is expected to reduce project-related impacts to a less-than-significant level with a mitigation ratio of a minimum of 3:1.

***Chorizanthe howellii* – Howell’s spineflower**

- A mitigation plan for long-term monitoring with direct seeding into suitable habitat, habitat improvement by removing asphalt, iceplant, and European beachgrass is expected to reduce project-related impacts to a less-than-significant level with a mitigation ratio of a minimum of 8:1. Because the project occurs within a State Natural Preserve, the largest feasible mitigation ratio was used.

***Horkelia marinensis* – Point Reyes Horkelia**

- To mitigate for potential impacts to horkelia, the implementation of surveying and removing weeds in the road buffer, with special focus on the horkelia patch, is expected to reduce the potential impacts to a less-than-significant level with a mitigation ratio of 1:1.

***Eryisimum menziesii* ssp. *menziesii* – Menzies' Wallflower**

- A mitigation plan for long-term monitoring with direct seeding into suitable habitat areas, and habitat improvement by removing iceplant and European beachgrass, is expected to reduce project-related impacts to a less-than-significant level with a mitigation ratio of a minimum of 8:1. Because the project occurs within a State Natural Preserve, the largest feasible mitigation ratio was used.

***Oenothera wolfii* – Wolf's evening-primrose**

- One small patch of evening-primrose at the northern bend in the haul road is within the 50 ft (15 m) potential impact buffer. It will be flagged and avoided. Some plants may be potentially impacted by the project; therefore direct seeding into suitable habitat at a 2:1 ratio will be implemented as mitigation, increasing the number of plants and reducing the impacts to a less-than-significant level.

b) This project will not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service. The removal of the culverts and road will have temporary direct impacts on several natural communities during project implementation; however, the project is designed to remove these unnatural features and improve the overall habitat of natural vegetation communities in the dune system. The project is considered to be self-mitigating and, coupled with the implementation of Standard and Specific Project Requirements BIO 2a and BIO 2b, any temporary impacts are considered to be less than significant..

This project will have temporary and thus, a less than significant impact on federally protected or state protected wetlands. The project design is to improve wetland habitat by removing culverts and expand wetland habitat by removing an earthen road prism. In addition, implementation of Standard and Specific Project Requirements BIO 3a and BIO 3b will ensure that the potential for impacts are further reduced.

d) This project will have less than significant impact on the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors. Restoration activities will enhance wildlife habitats and will not result in any significant adverse impacts.

e) The proposed project is not conflicting with local policies or ordinances protecting biological resources, such as Mendocino County’s coastal policies. The proposed project temporarily impacts

biological resources but affords mitigating measures to lessen the impacts to a level that is less than significant. No impact.

f) The project will not conflict with the provisions of any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan because none exist for the project location. No impact.

V. CULTURAL RESOURCES.

ENVIRONMENTAL SETTING

The project area is located within MacKerricher State Park (SP) on the northern Mendocino Coast. The park spans approximately 2,520 acres west of Highway 1 and encompasses much of the land west of the town of Cleone on a strip of coastline between Fort Bragg and Ten Mile River. The Park includes one of the few flat ocean terraces on the Mendocino coast with an elevation range from sea level to 120 feet (36.5 m) at the northern end (CSP 1995).

Situated on the western edge of the Coast Range, MacKerricher SP is characterized by marine terraces and extensive dune fields which divide the park into two distinct sections, north and south. The actual project area is located in the northern portion of the park in the Inglenook Fen - Ten Mile Dunes Natural Preserve which extends south from Ten Mile River to north of Ward Avenue. The northern portion of the park which includes the Preserve is comprised of five and a half miles of sandy shoreline backed by low bluffs and coastal dunes. The southern portion of the park, which is outside of the project area, is an open, relatively flat marine terrace with rocky bluffs and small secluded beaches that gradually slopes up from the Glass Beach parcels, north towards Lake Cleone and Laguna Point.

The natural topography in the park supports diverse plant communities including coastal strand vegetation on the beaches; dune swale plant communities, grasslands and coastal scrub, conifer forests, and riparian vegetation associated with the numerous streams, lagoons, lakes (Sandhill Lake and Lake Cleone), Inglenook Fen, and other wetland communities located throughout the park. In addition to the varied terrestrial plant communities, the marine and tidal environments are plentiful and diverse, consisting of a wide range of marine habitats supported on the sandy beaches and rocky shores. This environment has strongly influenced the rich cultural diversity found within the park.

CULTURAL SETTING

There are two main categories of cultural resources, the archaeological environment and the historic environment, both influenced by the resources available in the area. The topography, weather, and abundance of natural resources on the Mendocino Coast provided an ideal setting for both prehistoric and historic utilization and settlement in the region. Archaeological and ethnographic data from studies in the park suggest Native populations heavily utilized the area encompassing MacKerricher SP including the Ten Mile dunes, the Lake Cleone locale, and the southern bluffs (coastal terraces). These areas provided access to a rich and varied ecological setting, ideal for subsistence which included resource procurement and processing, and other activities related to occupation of major year-round villages to short term campsites. Historically, the entire park was part of the Mendocino Indian Reservation. When the reservation was abandoned and placed in the public domain, the land was bought for settlement and used for agriculture and ranching. Several years later as the value of timber in the region increased, the land now located within MacKerricher SP was used for transporting timber.

Prehistoric/Ethnographic Background –

Prehistory

Human presence on the Mendocino Coast extends back approximately 11,000 years; however, because archaeological investigations in the region are limited, knowledge of the prehistory remains sparse. Since populations during the earliest periods are assumed to have been quite meager and mobile, archaeological evidence associated with these periods is underrepresented and poorly defined. The region's archaeological

record of the last 3,000 years is more comprehensive, and as a result, more clearly understood. Investigations on the Mendocino Coast by Layton (1990) and White (1989), as well as numerous others have aided in developing regional chronological sequences for the area and have furthered our understanding of prehistoric settlement patterns on the north coast.

White (1989) focused his archaeological studies at MacKerricher SP. In addition to White's work at the park, Lindahl conducted a subsurface investigation in 2003 at a large shell midden site on the south side of Virgin Creek, approximately 2.5 miles (4.02 km) south of the Natural Preserve. To date, it is unclear if this work has been completed or published. This investigation was particularly important because it produced some of the oldest reliable dates for prehistoric sites in the park and possibly some of the oldest dates on the Mendocino Coast. Additionally, the site has the potential to produce significantly older prehistoric site dates in deeper deposits that currently have not been investigated. Dates derived from radiocarbon analysis range from circa 900 +/- 40 BP to 2890 +/- BP and fit well with the dates obtained through obsidian hydration of several specimens collected at the site.

The work by White (1989) is the most comprehensive and includes both an archaeological survey and the excavation of 11 prehistoric sites at MacKerricher SP. The excavations generated chronological data for reliable radiocarbon dating and distinctive "time-marker" artifacts that were used to develop a local expression of the late cultural history related to prehistoric sites in the park. The chronological sequence generated from this work has been grouped into three cultural/historical phases.

The phases developed by White (1989:141) for late period sites at MacKerricher SP include:

- MacKerricher Phase – is radiocarbon dated between AD 0 and AD 530. This phase was characterized by residency over fairly long periods on the coast. Occupation occurred sometime during the late spring through summer season. Visits may have been scheduled to correspond to the appearance of elk on the coastal prairie, and Steller sea lion in the near-by shore zone. Shellfish were a significant staple and were probably taken by searching out a varied catch from tide pools and rocks on the open coast, selecting for larger individuals.
- Sandhill Phase – is radiocarbon dated between AD 1300 and 1850. This phase was characterized by short term camps used in the early fall season. The site inventories reflect a narrow economic spectrum focused on mussel, supplemented by opportunistic hunting of terrestrial and marine mammals and gathering of vegetal foods. In comparison to MacKerricher Phase's seasonal residences, the Sandhill Phase deposits could be regarded as simple shellfish processing camps, probably used once or twice and then abandoned for long stretches in favor of other locations.
- Ten Mile Phase – is radiocarbon dated between 1850 and 1870. This phase characterized residence as limited, possibly seasonal episodes. Seasonal data are unclear, although summertime occupation is indicated. The economy included both native foods and foods obtained from the reservation authority.

Ethnography

Two Native American groups reportedly inhabited the MacKerricher SP area before the 1850s; however, the boundaries are not necessarily agreed upon since traditional settlement patterns had already been altered from Euro-American intrusions prior to conducting comprehensive ethnographic studies in the area. Additionally, critical resource procurement areas were shared by different tribal and linguistic groups. Generally, the location north of Cleone was Coast Yuki territory with Lake Cleone forming the approximate southern boundary. To the north, Coast Yuki territory extended past Rockport. The Northern Pomo occupied

the coastline around Fort Bragg and extended north to Virgin Creek and present day Lake Cleone. In the Lake Cleone area, the territory of the Coast Yuki and Northern Pomo overlapped (CSP 1995).

Coast Yuki

Dialectically, the Coast Yuki was a subgroup of the inland Yuki, speaking a language representing a small, isolated speech family (Kroeber 1925). The Coast Yuki comprised 11 groups who inhabited a 50 mile strip along the Mendocino Coast (Miller 1978). In MacKerricher, the Coast Yuki groups were the *Laliam-ontilka* near Cleone, the *Lilhuyak-ontilka* at Inglenook Beach, and the *Metkuyak-ontilka* at the mouth of Ten Mile River. After Euro-American settlement in the region, the population of the Coast Yuki dropped significantly. In 1972, they were determined ethnographically extinct (Miller 1978).

According to Kroeber (1953), the Coast Yuki called themselves *Yukoht-ontilka* (ocean people). Described as a small group of shell mound dwellers that occupied beach camps in the summer months and in the winter, groups moved more inland (Miller 1978). Although their economy focused on a variety of marine and terrestrial resources, their quest for marine foods was of particular importance. Invertebrates from the mid to high littoral rocky coast were gathered by everyone. Mussels and barnacles were preferred but gastropods and bivalves were also collected. Other resources from the ocean environment and littoral zone were seaweed, surf fish and sea lions, seal, and salt. Salmon caught in the local rivers was also vital to the Coast Yuki diet. Important terrestrial resources included acorns, seeds, and other vegetal products as well as elk and deer. Women were responsible for collecting plant resources and the men hunted and fished. The Coast Yuki traveled to neighboring areas to acquire resources not readily available in their territory.

The Northern Pomo

The Northern Pomo were one of seven tribes that spoke languages of the Pomoan linguistic family (McLendon and Oswalt 1978). Various tribelets of the Northern Pomo inhabited central Mendocino County on 22 miles (35.4 km) of coastal frontage that extended into present day MacKerricher SP. To the east, their territory extended in an irregular band to the northwest shore of Clear Lake and followed the Navarro River south. The *Mato-Poma* was a tribelet whose territory encompassed MacKerricher SP (McLendon and Oswalt 1978). Not until encroachment by Euro-American settlers into the interior valleys around 1850, did the Northern Pomo live year-round on the coast. Prior to permanent occupation on the coast, various Northern Pomo tribes had favorite coastal campsites and procurement areas which were occupied during the summer months.

In addition to their own territory, the Northern Pomo hunted and gathered food and procured various other resources in the Ten Mile River watershed and north along the coast in the tribal lands of the Coast Yuki. Like their Yuki neighbors, the Northern Pomo had similar resource preferences and relied heavily on the rich littoral resources of the coast which provided an abundance of shellfish, seaweed, and surf fish. Marine mammals including sea lions and seal were hunted while runs of salmon and steelhead were taken seasonally in the larger drainages. Terrestrial animals including deer, elk, and mammals such as rabbit were hunted or trapped. Tan oak, black oak, and hazel were important vegetal resources to the Northern Pomo. Birds were valued mainly for their brightly colored feathers, used to adorn baskets and ceremonial regalia (Van Bueren 2007).

Mendocino Indian Reservation

MacKerricher SP found its beginnings as an Indian Reservation. The Mendocino Indian Reservation was established in 1856 and was the first official reservation in the northwestern section of the State. It was established because of pressures from American settlers troubled by Indian depredations, who threatened vigilante reprisals unless the government intervened (CSP 1995). The reservation was approximately 25,000 acres and included the entire Ten Mile Township and covered all of what is now MacKerricher SP. The Noyo

River formed the southern boundary of the reservation which extended north to Ten Mile River. The coast formed the western boundary, and inland, the boundary was the first forested ridgeline.

The primary objective of the reservation was to concentrate Native people into one area where they could be controlled, less vulnerable to attacks by Euro-American settlers, and could be taught farming and simple trades (CSP 1995). In addition to the local Native American groups, the U.S. Army brought indigenous people from throughout Northern California to the reservation including Indians from Anderson Valley, Ukiah, Round Valley, Russian River Valley, Sulphur Creek, Bodega Bay, Humboldt County, Pit River, Hat Creek, Butte Creek, Feather River, and the greater Mendocino County. This grouping of local Native American tribes with more distant neighbors resulted in former enemies residing in close contact on reservation land. The inevitable consequence related to this assemblage of people was constant strife amongst the various tribal groups.

In 1856, it was reported that over three-thousand Indians were residing on the reservation (CSP 1995). On the reservation, the government attempted to establish agricultural activities and educate the Indians. In addition to farming, the Indians were encouraged to continue gathering their traditional foods, particularly fish (CPDR 1995).

In 1857, the town of Fort Bragg was established as a military garrison to maintain order and keep peace on the reservation and surrounding land. Troops stationed at Fort Bragg watched over the reservation and attempted to mitigate problems between the various tribal groups and between Native populations and settlers. During the 1850s and 1860s, the presence of the military had little effect at reducing the continued conflict between the settlers and the Indian population (CSP 1995).

The Mendocino Indian Reservation was considered a failure and was abandoned in 1867. Several years later when the value of timber resources and other economic opportunities were realized in the region, pressure was put on the government to release reservation property into public domain so the lands could be purchased. Once put into public domain, the land was offered for settlement and development at \$1.25 per acre (Unit History File n.d.).

After the Mendocino Indian Reservation was terminated most Native people returned to their former homes, especially those forced onto the reservation from out of the area. For local tribal groups, their traditional ancestral lands were taken over by settlers. Traditional life-ways, including hunting, fishing, and gathering places were no longer available. As a result, local Native American groups gradually became more dependent on employment for their livelihood. Many were allowed to settle on large ranches with the owner's permission, and as needed, worked on the ranches. Other employment included working in the hop and grain fields or as wood choppers (Unit History File n.d.).

Historic Background

Early Exploration

Established in 1812, Fort Ross was the first permanent settlement on the Northern California coast. After the Russians left Fort Ross in 1841, California's Mexican government encouraged permanent settlement in the Mendocino region by making land grants available to Mexican citizens. By 1845, William Richardson established one of two ranchos on the Mendocino Coast. Richardson's Albion Rancho, situated approximately ten miles south of present-day MacKerricher SP, aided in the settlement of the Mendocino Coast by making the region more accessible to other settlers (CSP 1995:47).

By 1851, a handful of settlers occupied the Mendocino coast and settled in the Big River area north of Richardson's Albion Rancho. In the winter of 1850-51, the brig *Frolic* heading for San Francisco with a cargo of Chinese goods wrecked in the ocean near Point Cabrillo. The salvage crew sent from San Francisco was

unable to retrieve the lost cargo but did report back on the established settlements and giant redwoods along the Mendocino Coast. This report revealed potential opportunities for a redwood lumber industry in the region. In 1852, the first lumber mill in the area was constructed at Big River. The timber industry expedited the influx of American settlers into the Mendocino area. As the timber industry expanded and economic opportunities expanded, settlement in the area continued to increase.

Towns were established along the Mendocino Coast in locations where the topography was conducive to loading ships with lumber. As settlement in the region increased, so did agitation between the Native people and settlers. This resulted in demands for both a military outpost and establishment of an Indian reservation (Mendocino Indian Reservation).

History Relevant to the Park

Duncan MacKerricher was one of the first settlers in the Mendocino area to purchase land released from the reservation. MacKerricher with his wife settled on the Mendocino Coast in 1864. Originally, MacKerricher worked on the Mendocino Indian Reservation's dairy. After the federal government abandoned the reservation, MacKerricher purchased 640 acres of the newly available reservation land for \$1.25/acre. Eventually, MacKerricher amassed over 1200 acres. A portion of MacKerricher's holdings became the core of the present-day state park (CSP n.d., 1866, 1868; CSP 1995:48).

MacKerricher raised crops and livestock on his ranch. In 1882, MacKerricher allowed Alexander Jefferson and Sam Kennedy to build a wharf, an apron chute, and a shipping yard on his property. The shipping point served two sawmills; one built in 1883 on Laguna Creek (present day Mill Creek) and the other built around the same time on the south fork of Ten Mile River. In 1855, winter storms washed out the chute and wharf but were replaced soon thereafter.

The Little Valley Lumber Company incorporated in 1885 and purchased Jefferson and Kennedy's Laguna Creek Mill to add to their holdings. In 1887 MacKerricher sold a tract of land one mile up Laguna Creek for a sawmill site and deeded a 30 foot roadway easement down to the county road, now State Highway 1, to Little Valley. The Little Valley Lumber Company constructed a tramway two and a half miles long to transport timber from their Laguna Creek Mill to the wharf (CSP n.d. 1887; CSP 1995: 49).

Duncan MacKerricher operated the ranch until 1908 when he and his wife moved to the town of Fort Bragg. MacKerricher's wife died in 1923, and in 1926, MacKerricher died. The ranch property, though reduced in size from prior parcel sales, remained in the family until 1949, at which time, the heirs to MacKerricher sold a 205 acre parcel to the State for use as a state park.

Logging

When the first lumber mill was established 1852, the Mendocino area was sparsely settled. As the demand for lumber grew, settlement and development in the area increased. In 1882, Charles Russell Johnson, James Hunter, and Calvin Stewart established the Newport Sawmill Company on Mill Creek which was located within the boundaries of the present-day State Park. In an effort to improve shipping facilities, the Newport Sawmill Company merged with the Noyo Lumber Company in 1884, forming the Fort Bragg Redwood Company. A new mill was constructed in 1885 in Fort Bragg by the Fort Bragg Redwood Company which moved all its milling operations to this location. Construction of the new mill in Fort Bragg led to increased settlement and development near the new mill and eventually led to the incorporation of the town of Fort Bragg in 1889 (CSP 1996).

The Fort Bragg Redwood Company merged with other small lumber companies in 1891 to increase capital for expansion. Between 1905 and 1921, the Union Lumber Company acquired controlling interest in Glen Briar Redwood Company, the Little Valley Lumber Company, and the California Lumber Company (CSP 1996)

The Haul Road

In 1916, the Union Lumber Company (CA-MEN-2946H) constructed the Ten Mile River Railroad to transport timber from the Ten Mile River watershed to their mill in Fort Bragg. The railroad alignment traveled north from the mill in Fort Bragg, crossing Pudding and Virgin Creeks and continued north along the coastal terrace to Laguna Point. From Laguna Point the grade dropped in elevation to almost level with the beach along the edge of Ten Mile Dunes. At Ten Mile River, the railroad alignment turned east and then south, paralleling the river into the watershed.

In order for the railroad alignment to maintain elevation along the coast, the Union Lumber Company constructed a berm for the tracks. Construction of the berm at Mill Creek resulted in the formation of Lake Cleone. From 1917 to 1949, the Union Lumber Company transported over 95 percent of their timber harvest to the mill using the Ten Mile Railroad. In 1949, the Union Lumber Company converted the railroad grade to a truck hauling road. This conversion included the removal of rails and ties along the alignment. Several layers of gravel and road base rock were imported from a quarry up the north fork of Ten Mile River. The gravel was used to cap over the grade footprint to construct the road. Eventually, the haul road was paved (chip-sealed).

Within MacKerricher SP, the Union Lumber Company continued to use the haul road to transport timber. In the summer of 1977, the Georgia Pacific Corporation (merged operations with Union Lumber Company in 1969) opened the haul road to the public on the weekends. Vehicle use of the road continued until 1983, when a violent storm washed out a half-mile portion of the road along the beach in the Ten Mile Dunes vicinity. Since being abandoned in 1983, degradation of the haul road has continued and as a result, is no longer viable as a travel corridor in the Preserve. However, the haul road south of Ward Avenue is an important recreational venue for the park and is used by visitors for a myriad of recreational activities including biking, hiking, and access to the beach.

The Park

The State acquired lands for MacKerricher SP after massive park expansion fueled by California's booming population and economy after World War II. The park opened to the public on a limited basis in 1951 and officially opened in 1953 with the completion of a 20-site campground and day-use facilities. In 1992 the State purchased the Pudding Creek Trestle and in 1994 the remaining segments of the Haul Road situated in the park.

ARCHAEOLOGICAL AND HISTORICAL RESOURCES

The library and other archival records and sources on file at the CSP Northern Service Center (NSC) were consulted for the project to assemble pertinent information related to the archaeological and historical resource potential in the project area. Additionally, the cultural resource specialist reviewing the project contacted relevant institutions and searched pertinent data bases for further information concerning cultural resources in the park.

This comprehensive information search yielded significant information related to the archaeological and historic resources in the park, and in particular the project area. The information search indicates MacKerricher SP and the Ten Miles Dunes area have been the subject of numerous archaeological investigations and cultural

resource inventories over the last 60 years. These studies have consisted of both terrestrial surveys and subsurface investigation related to park projects (development and maintenance) and scientific studies associated with Universities. The first official archaeological investigation was conducted in 1949, when the park was acquired and included the survey of the entire unit. Schulz (1985) surveyed the entire park unit in 1985 for a coastal site protection program and bluff stabilization project. The study by Schulz resulted in the subsurface investigation of 11 prehistoric sites identified as having been damaged or threatened by bluff or dune erosion. Greg White carried out the investigation of these sites in 1988. The work by White was important because it led to the development of a regional chronology (prehistoric) based on three periods of settlement, beginning around AD 80 and terminating in 1866 with the demise of the Mendocino Indian Reservation. Since the 1980s, numerous other archaeological studies have taken place in the park for a multitude of projects including major and minor projects, routine park maintenance, and deferred maintenance.

Several terrestrial surveys and subsurface investigations have overlapped into the Ten Mile Dunes area and encompass the project area. The results of these investigations have assisted in the identification of cultural resources in the Area of Potential Effect (APE) and have aided in the development of the project treatment and cultural mitigation measures that would insure potential impacts to these resources are maintained at a “less than significant” level.

Currently, University of California, Davis (UCD) is conducting both surface and subsurface investigations in the Inglenook Fen - Ten Mile Dunes Natural Preserve. Results from the work by UCD are pending.

Archaeological Resources -

Over 40 Native American and numerous historic archaeological sites have been recorded in the park unit. Many of the Native American sites have historic components related to aboriginal occupation of the area during the Mendocino Indian Reservation era. Fourteen of these sites are documented in the Inglenook Fen – Ten Mile Dunes Natural Preserve. Ten are within or near the APE. All but two of these resources are related to aboriginal utilization and occupation. Historic archaeological resources are related to transportation and habitation.

The concentration of Native American sites at MacKerricher SP including those present in the project area represent a unique and relatively intact series of settlement systems in an area used with varying intensity over the last 3,000 to 4,000 years along the Mendocino Coast. The archaeological resources represent Pomoan and Coast Yuki occupation and are significant in their demonstrated potential to answer research questions relating to chronology, resource utilization, settlement dynamics, and acculturation processes (CSP 1995) either as individual sites or when studied in a larger context of an “archaeological district.” To date, these Native American sites have not been officially evaluated for inclusion into the National Register of Historic Places (NRHP). Until an official determination of significance is made in consultation with the California State Historic Preservation Officer (SHPO), these sites would be treated as eligible for inclusion into the NRHP because of their potential scientific value.

Historic archaeological resources include the location of a former structure/habitation site and a segment of the former Union Lumber Company Haul Road (CA-MEN-2946H). The artifact scatter at the structure/habitation site suggests an occupation date post 1945. The historic site is located on private property adjacent to the project area but would not be subjected to project work.

The other historic site, the Union Lumber Company Haul Road is a major component of this project. Restoration efforts include the removal of a 2.7 mile (4.3 km) segment of the road that was heavily impacted by past storm events, and is no longer contiguous with the road south of Ward Avenue. Because the haul road is 50 plus years old and a segment of the abandoned road would be removed as part of the project, an evaluation of the site for potential listing on the National Register was warranted. The evaluation of the Union

Lumber Company Haul Road was conducted by State Park personnel and was sent to SHPO for review. The evaluation concluded the haul road was not eligible for listing on the NRHP due to a loss of integrity, as well as not meeting any one of the four criteria required for listing. The evaluation viewed the former Union Lumber Company Haul Road as an isolated segment of an abandoned road that has no potential to be considered significant under any of the four National Register criteria. The haul road is not unique; but rather, one of literally hundreds of such facilities throughout the lumber regions of California. Additionally, it is neither associated with an important historical event (Criterion A), nor is it associated with a historically important person (Criterion B). The road does not embody unique characteristics of a type, period, or method of construction (Criterion C). The potential to yield significant information that would address important research questions (Criterion D) is lacking given the degradation of the alignment and commonality of construction and use. Not only does the haul road not meet any of the criteria for the National Register, the integrity of the road alignment has been severely compromised, the result of constant coastal erosion, wave action along the bluff, and severe winter storm events. Due to these actions, large portions of the road in the dunes have eroded away. Given the conclusions from this National Register evaluation, the Union Lumber Company Haul Road (CA-MEN2946H) is not considered a “historic property” and would be removed in locations where appropriate in the project area.

Historic Resources

One historic structure has been documented in the Ten Mile Dunes Preserve. The structure consists of a barn, originally constructed ca.1880. The Ross Barn is located outside of the project area east of Inglenook Fen. The barn was demolished and rebuilt in the 1960s. The reconstruction efforts included new framing and the original historic siding.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Cause a substantial adverse change in the significance of a historical resource, as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource, pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

CRITERIA FOR DETERMINING SIGNIFICANCE

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

DISCUSSION

a) HISTORICAL RESOURCE

One reconstructed historic structure has been documented in the Ten Mile Dunes Natural Preserve. The Ross Barn is located outside of the project area and would not be impacted by work related to this restoration project. Therefore, no impact would result.

b) ARCHAEOLOGICAL RESOURCES

Archival research and field investigations confirm MacKerricher SP including Inglenook Fen – Ten Mile Dunes Natural Preserve has a very high degree of archaeological sensitivity. Fourteen archaeological sites have been documented in and adjacent to the project area, and copious others have been recorded in other areas throughout the park. Most of these sites are related to Native American utilization of the area, both prehistorically and historically (Mendocino Indian Reservation era).

Project work associated with these restoration efforts has the potential to impact many of these culturally sensitive areas since most are located within the haul road corridor or in other areas where restoration activities are planned. The proposed project includes the excavation and removal of remnant segments of the old haul road, removal of three culverts, treatment of 60 acres to eradicate non-native invasive plant species, and revegetation of impaired habitat. All of the proposed project tasks have varying degrees of associated ground disturbances. These ground disruptions could significantly impact archaeological resources. Implementation of Standard and Specific Project Requirements and Avoidance Measures for Cultural Resources as defined in the Chapter 2.7 of this document will maintain potential impacts at a “less than significant” level.

Staging Areas: Certain locations for staging/storage of vehicles, equipment, and/or material used during restoration efforts could impact culturally sensitive areas. Implementation of Specific Project Requirement CULT-2B and CULT-3B will maintain impacts at a “less than significant” level.

Excess Material Disposal: This project would generate large amounts of excess materials from removal of the haul road and sand which currently cover portions of the road. Disposal of these materials within the Inglenook Fen – Ten Mile Dunes Natural Preserve has the potential to impact both documented and undocumented archaeological sites. The implementation of Specific Project Requirement CULT-2C and CULT-3D will maintain potential impacts at a “less than significant” level.

Removal of the Haul Road: The actual removal of the haul road has the potential to significantly impact documented archaeological sites located within the Inglenook Fen-Ten Mile Dunes Preserve. Many of the sites are situated adjacent to or are bisected by the feature. The road has acted like a protective cap over these archaeological deposits for the last 90 years. Ground disturbing activities to remove the road material could penetrate archaeological deposits currently capped by the haul road. Additionally, in some locations, the only thing protecting archaeological deposits from being destroyed by coastal erosion is the haul road cap which acts as a barrier. To maintain potential impacts at a “less than significant” level, Specific Project Requirements for Documented Archaeological Site Avoidance drafted by a CSP State Archaeologist will be incorporated into the Sensitive Resources Avoidance Plan. The Sensitive Resources Avoidance Plan will identify these locations and specific treatment measures to be implemented by CSP staff and the project contractor. Due to the sensitive nature of the information, the specifics of the Avoidance Plan will be provided to the project manager and other appropriate project personnel but will not be included in this document.

Habitat Restoration Work/ European Beachgrass Removal: The Inglenook Fen-Ten Mile Dunes Natural Preserve has been inundated with European beach grass and has diminished habitat for native plants and animal species. In addition to removal of the haul road, other restoration efforts include the removal of European beach grass in previously untreated and treated area. The European beach grass is ubiquitous

throughout the dunes including locations where archaeological resources are present. To maintain potential impacts to both documented and undocumented archaeological resources at a “less than significant” level, Standard Project Requirement CULT-1E and Specific Project Requirement CULT-3C will be implemented.

Inadvertent Finds: The boundaries of the prehistoric sites located in the project area are based primarily on surface observations from terrestrial archaeological surveys and limited surface investigations. The reliability of these surface surveys is dependent on ground visibility and the extent of the surface manifestation associated with the archaeological deposits. Given the inherent nature of archaeological deposits, often located below the surface, and the placement of these archaeological deposits on the sand dunes, it is probable the full extent of these sites and their boundaries are not clearly defined. Concise determination of the horizontal and vertical distributions of these archaeological sites is difficult at best. To maintain impacts at a “less than significant” level, Standard Project Requirement CULT-7B will be implemented in the event of inadvertent finds during project work.

c) DISCOVERY OF HUMAN REMAINS

MacKerricher SP including the Inglenook Fen-Ten Mile Dunes Natural Preserve was used intensively by indigenous groups for thousands of years. Given the intensive utilization of the area, it is not surprising that human remains associated with Native American burial practices have been recorded at various locations throughout the park including the Preserve. In 1910, during construction in the dunes for the Union Lumber Company railroad bed a group of skeletons were found, indicating a cemetery was there (Berry 1977). Since that time, human remains have been exposed in other locations throughout the Preserve as the dunes shift and move.

To address the inadvertent discovery of human remains during any project work, CSP and the Native American Heritage Commission (NAHC) have developed a protocol for the treatment of such finds. Implementation of this protocol will maintain impacts at a “less than significant” level. Refer to Standard Project Requirement s CULT 8A - CULT-8D.

VI. GEOLOGY AND SOILS.

ENVIRONMENTAL SETTING

The Ten Mile Dunes consist of three main lobes, formed by the active movement of sands that originated from sediments flowing from the Ten Mile River and other offshore sands carried in from the north and south during large storm events (Bedrossian 2011). Within each dune lobe, a series of broad, partially vegetated, sub-parallel transverse sand ridges, about 100 to 200 feet (30 to 60 meters) wide and up to 100 feet (30 meters) high inland, parallel the coastline. The three lobes are separated at an average distance of 1500 feet (460 meters) by the Inglenook and Fen Creek drainages which flow through the dunes, creating moist, interlobe depressions (Fox and Barry 1977). Coastal terraces of the Franciscan Formation, bordering the dunes to the east, form the upland topography and associated woody vegetation that are influential in halting sand movement inland. Traces of the active San Andreas Fault Zone lie roughly parallel to the coast, within 1 to 5 miles (1.6 to 8.0 kilometers) offshore (CGS, 2010). Detailed information on the geology of the dunes is provided in the California Geologic Survey Report, Subject: MacKerricher State Park – Sand Grain Size and Mineral Composition Analyses, Ten Mile Dunes Road Removal and Dune Rehabilitation Project found in Appendix E: Sand Analysis.

Three soil types dominate the Ten Mile Dunes and Inglenook Fen area (U. S. Dept. of Agriculture, Natural Resources Conservation Service 2003). Duneland soils have little, if any, profile development, rapid permeability, and low water capacity, resulting in an effective rooting depth of greater than 60 inches (150 centimeters). Tropaquept soils are more common in adjacent coastal prairie and in drainages. These are deep, poorly drained, and of variable permeability and water capacity. Effective rooting depths are limited by seasonal soil saturation. Some of these soils probably developed, in part, under forest canopy cover that has since been removed (Fox and Barry 1977). Sirdrak soils are deep and excessively drained, forming on aeolian sand deposits. They are rapidly permeable, with moderate water capacity and a rooting depth of greater than 60 inches (150 centimeters). In the fen and fen-carr areas, soils are classified as organic hydromorphic, formed from decomposition and sedimentary deposition of upstream organic materials (Fox and Barry 1977); these soils include peats. Upslope from the fens and dunes, and not abundant on State Parks property, two other soil types are common on the mid- and upper marine terraces: Hugo loams from older parent material, and Empire sandy loams, of considerably younger geological origin (Fox and Barry 1977).

WOULD THE PROJECT:	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area, or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable, as a result of the project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1997), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste disposal systems, where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) The proposed project would not involve the construction of any structure intended for human use and no structures or facilities for human use exist within the Preserve. No known active earthquake faults exist within the project area. The closest active fault is the San Andreas, which lies within 1 to 5 miles (1.6 to 8.0 kilometers) offshore from MacKerricher SP. According to the USGS/CGS (2002), peak ground accelerations from shaking that could occur in the area range between 30% and 40% g (acceleration of gravity) with a 10% chance of being exceeded in 50 years. While ground shaking from a major earthquake would be felt, and localized areas of saturated sand could result in liquefaction near wet areas, the risk of injury or death resulting from liquefaction, slides, or other soil movements would not be increased as a result of project activities. The removal of remnant road segments and asphalt fragments would enhance public safety along certain sections of the beach, particularly where the road forms steep cliffs that have been undercut by erosion and storm events. The project would have no impact.
- b) The proposed project includes the removal of two culverts located at Fen Creek and Inglenook Creek, as well as the removal of the remnant haul road. The portion of the haul road scheduled for removal was originally constructed in an active dune system. Removal of the asphalt and road base would expose the soil beneath, which consists of unconsolidated sand particles. It is expected that the native sands would be dispersed by the prevailing NW winds and blow inland (nearshore) over the short-term, forming a series of longitudinal-shaped foredunes perpendicular to the coastline. The small dunes would collect more sand and continue to grow, most likely around small clumps of vegetation, until some threshold size is reached. The addition of sand is also likely to change the configuration of the dunes as they migrate to the east (i.e., additional transverse dunes could develop and/or grow in height farther inland), the nature of the vegetation, and the drainage patterns throughout the dunes (Bedrossian 2011). These processes are consistent with the goal of the project, i.e., to return the dune system to a more natural state and restore the dynamic processes within the Preserve.

A short-term increase in erosion may also occur during the removal of culverts and the remnant road sections at the creek crossings. The removal of culverts and debris from the channels can be accomplished using a conventional track-mounted excavator (Reynolds 2011). To minimize the potential for impacts to the streams, paired sandbag cofferdams would be used for dewatering, providing access to the work area and minimizing the introduction of fine sediment (see Hydrology and Water Quality). Erosion control measures would also be introduced as part of the restoration of the natural channels once the culverts are removed. Implementation of Standard and Specific Project Requirements (BIO-5b, GEO-1 and HYDRO-1) would ensure impacts would remain at a less than significant level.

- c) The project is not located within a geologic unit or soil that is known to be unstable, based upon available data. However, the coastal margin of California is subject to coastal bluff erosion and seismically induced liquefaction can also occur in unconsolidated granular soils that are water saturated. Analyses of sand samples collected within the project area indicated between 61 and 99% of the grains are fine grained sand between 0.5 and 1.7×10^{-3} inch (0.125 and 0.425 millimeters) in size (Bedrossian 2011). In most sample areas, some degree of moisture was encountered 3 to six inches (8 to 15 centimeters) below the surface. While localized areas of saturated sand could result in liquefaction, particularly near wet areas, the risk of injury or death resulting from liquefaction, slides, or other soil movements would not be increased as a result of

project activities. The project would not include new construction and would be removing deteriorated road material and culverts from a Preserve and potentially avoiding future collapse of undercut road sections. The project would have no impact.

- d) Expansive soils do not exist in the project area. No new structures are being constructed. The project would have no impact.
- e) The project does not involve the installation of a septic system or waste water disposal. The project would have no impact.
- f) The project is not located within a known paleontological resource area. The entire project area is part of a unique geologic feature which has already been designated a Natural Preserve. The road and culvert removal project would return the dune system to a more natural state and restore the dynamic processes within the Preserve. The project would have no impact.

VII. Green House Gas Emissions and Climate Change

ENVIRONMENTAL SETTING

The Mendocino County Air Quality Management District has not adopted formal CEQA Thresholds in the past. The District has traditionally relied informally on the CEQA thresholds adopted by the Bay Area Air Quality Management District (BAAQMD) with minor modifications reflecting location conditions. In 2010 the Bay Area Air Quality Management District formally adopted new Criteria and Greenhouse Gas emissions CEQA thresholds.

The Mendocino County District currently requests that the Bay Area Air Quality Management District CEQA thresholds and CEQA guidelines be followed to evaluate air quality impacts. In addition to the BAAQMD guidelines, this project would comply with state recommendations and guidelines to reduce GHG emissions.

California Assembly Bill No. 32 (AB-32), also known as the Global Warming Solutions Act, was passed on August 31, 2006. AB 32 codifies the state's goal by requiring that the state's greenhouse gas (GHG) emissions be reduced to ten percent below the 1990 GHG emissions level as a target to be achieved by 2020. Regulating carbon dioxide (CO₂), which is the major GHG contributor to global warming, has been the main focus for achieving the 1990 levels.

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

BAAQMD does not have an adopted *Threshold of Significance* for construction-related Greenhouse Gas (GHG) emissions. However, lead agencies should quantify and disclose GHG emissions that would occur during construction, and make a determination on the significance of these construction-generated GHG emission impacts in relation to meeting AB 32 GHG reduction goals. The BAAQMD also encourage agencies to incorporate best management practices to reduce GHG emissions during construction.

Best management practices may include, but are not limited to: using alternative fueled (e.g., biodiesel, electric) construction vehicles/equipment of at least 15 percent of the fleet; using local building materials of at least 10 percent; and recycling or reusing at least 50 percent of construction waste or demolition materials.

According to the Mendocino County General Plan, the county is primarily rural and thus the amount of greenhouse gases generated by human activities (primarily the burning of fossil fuels for vehicles, heating and other uses) is small in total compared to other more urban counties (although higher per capita due to the distances involved in traveling around the county) and miniscule in statewide or global terms. However, Mendocino County acknowledges its responsibility to reduce GHG emissions. In the long-term County efforts will focus on reductions in the sources of greenhouse gases in the county through a comprehensive greenhouse gas reduction plan for both County operations and the broader area governed by Mendocino County. For the near-term, the General Plan identifies energy-reducing policies that will lower overall CO₂ emissions (County of Mendocino 2009).

California State Parks (CSP) has developed a "Cool Parks" initiative to address climate change within

the State Park system. Cool Parks proposes that CSP itself as well as resources under its care adapt to the environmental changes resulting from climate change. In order to fulfill the Cool Parks initiative, State Parks is dedicated to using alternative energy sources, low emission vehicles, recycling and reusing supplies and materials, and educating staff and visitors on climate change (CSP 2008).

The best available data for analyzing potential GHG emissions are models that apply project specific data to a modeling program for calculating impact to air quality. The closest model currently available to a state park environment is the California Emissions Estimator Model (CalEEMod) as developed by the South Coast Air Quality Management District. The CalEEMod is a land use based model with a recreation option that includes a city park subtype. Project specific data including annual operations and construction activities can be input to the model and project based results generated. As a baseline reference for existing statewide GHG emissions, the Mendocino County Criteria Pollutants annual estimates for 2010 were used for ROG, NO_x, CO, PM¹⁰ and PM^{2.5}. The California transportation sector annual CO₂ estimates for GHG-contributing emissions was used as the carbon dioxide baseline

Sea Level Rise

Under CSP policy, landscapes are allowed to change through natural occurrences and processes. However, climate change is generating natural changes beyond conventional boundaries. Sea level and storm surge are two processes affected by climate change. A sea level rise (SLR) of as much as 55 inches (1.4 meters) is predicted by 2100, 8 times the sea level increase of the prior century (Pacific Institute, 2009).

CSP began assessing the susceptibility of State Parks and Beaches to SLR beginning in 2011 with the help of the Pacific Institute and the United State Geological Survey (USGS). MacKerricher SP scores a “high” vulnerability criterion in both Pacific Institute and USGS Coastal Vulnerability Index (CVI) models used for CSP project evaluation (both models use elevation as a primary metric and acknowledge local conditions may vary results). Pacific Institute modeling for the year 2100 suggests the mean tide line would remain west of the project area. However, modeling demonstrates the potential for dune erosion affecting a large portion of the foredunes currently stabilized by the remnant haul road. Further, modeling depicting future high tides in conjunction with a 100 year flood event indicates flooding could occur into the current deflation zones (interdune depressions) and inundate portions of the Inglenook and Fen Creek watersheds within the Preserve (see Appendix A: Sea-Level Rise).

Natural processes formed the dynamic dune ecosystem’s coastal strand, foredunes, deflation zones, sand sheet and wetlands. The haul road and European beachgrass alter dune system processes and impede the landscape-shaping influences of the wind and ocean. Fresh water and salt water inundations are evident throughout the Preserve. CSP natural resources staff mapped the driftwood resting on the eastern side of the haul road and in the deflation plains giving evidence of storm surges moving debris well inland or creating blowouts through the foredunes (Wollenburg and Maslach, 2004). Inglenook Creek and Fen Creek and their accompanying watersheds host wetlands and open water features including a fen and a small lake.

SLR modeling projects the inundation of areas with known sensitive cultural resources. CSP has collaborated with archeologists in the past identifying and documenting cultural sites throughout the Preserve. Numerous sites were remapped in 2011 in conjunction with a University of California at Davis summer study program.

SLR modeling suggests inundation of areas containing plant and animal species with state and/or federal designations as well as sensitive plant communities. CSP natural resources staff surveyed and mapped these locations in 2011 and plans to monitor these populations as part of the standard project

requirements. Since the native species are adapted to the changing dune environment, preserve management is performed in support of natural processes upon which these species and communities depend.

The Preserve infrastructure affected by SLR would include potential inundation of boundary signs along the northern boundary. No other CSP maintained infrastructure exists in the preserve.

Access to and through the Preserve affected by SLR would be minimal. No official CSP maintained trails exist within the Preserve. The non-maintained Coastal Trail stretches along the beach from Ward Avenue to the Ten Mile River. The actual location of the trail varies with the contour of the coastline as it follows the coastal strand.

There are no foreseeable effects to recreational opportunities or park revenue in the Preserve due to SLR in relation to the proposed project.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environmental?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

DISCUSSION

- a) Currently, the State has not developed specific GHG thresholds of significance for use in preparing environmental analyses under CEQA, although the State has provided guidance to lead agencies in determining significant impacts from GHG emissions. The Mendocino County Air Quality Management District has not adopted GHG thresholds to determine significance. Therefore, in lieu of thresholds, a qualitative discussion of the GHG emissions related to the Dune Rehabilitation Project and its potential impacts is included, as well as calculations of project GHG emissions generated by the CalEEMod program based on project-specific data.

The transportation sector is the largest contributor to GHG emissions. Project vehicles and equipment would likely include the following: 1 excavator; 2 950-series front end loaders; 1 Caterpillar 416 backhoe; 2 D-6 tractors; 5 off-highway dump trucks; 6 highway approved 10-wheel dump trucks; 1 light duty truck with 100-gallon fuel tank; and up to 15 crew transport vehicles. Some minor changes in types of equipment may be needed depending on the contractor hired to complete the project. Not all vehicles and equipment would operate simultaneously within the Preserve. Most crew vehicles would park at the staging area where crew members would transfer to work equipment. Some equipment would only be operating during certain stages of the project depending on the work being done. Other vehicles, such as

the 10-wheel dump trucks, may be moving materials from staging areas within the project and potentially within the Caltrans “mixing table” to a disposal and recycling facilities chosen by the contractor and/or to a storage site on State Park property approximately 20 miles (32 km) south at Big River, and would not operate within the Preserve. On most days there would be four to six heavy equipment operators working and 3 to 11 dump trucks hauling materials from the project site to stockpile and disposal sites.

Based on calculations provided by project engineers and equipment operators, CSP estimates that the Dune Rehabilitation Project construction period would last approximately 45 days if project activity is conducted 5 days per week. Seasonal restrictions, weather, and high tide events could affect the schedule and prolong activity at the project site. The project engineers estimate 23 workers on site during peak activities. Peak project activities would occur at the time the remnant haul road segments and road base are removed and at the time these materials are being hauled out of the Preserve. An estimated 17 heavy equipment vehicles would support project activities during peak construction activities over the 45-day project period.

Currently at State Parks all diesel-fueled equipment and vehicles use California Air Resources Control Board certified motor vehicle diesel fuel, and heavy equipment such as dump trucks equipped with particulate traps result in 99.7% cleaner running vehicles. All contractors involved in the project would be required to meet or exceed CSP standards and follow Best Management Practices for the reduction of GHG emissions.

Standard Project Requirements would require all construction related equipment engines to be maintained and properly tuned up (according to manufacturer’s specifications), and in compliance with all state and federal requirements. This requirement is designed to reduce project-related emissions of CO₂ and N₂O.

The construction-related phase of the proposed Dune Rehabilitation Project involving equipment and vehicle use would be short-term and GHG emissions from project equipment and vehicles would be temporary and limited. The proposed project is primarily a restoration effort located in a remote part of MacKerricher State Park where only pedestrian and equestrian access is normally allowed. Therefore, there would be no anticipated increase in the number of vehicle trips to and from this area of the park in the long term and no significant operational increase of GHG emissions. The project would have a less than significant impact.

The Project would contribute less than 1/100% for ROG, CO, and PM^{2.5} pollutants when compared with annual Mendocino County pollutant emissions estimated by the Air Resources Board and less than 1/10% of NO_x and PM¹⁰ (see Table 3. GHG–01: Mendocino County 2010 Estimated Criteria Pollutant (GHG contributors) and Modeled Project related Emissions). When compared to GHG CO₂ emissions within the transportation sector, modeled Project emissions would contribute less than 1/1000% as compared with the 2008 GHG Inventory estimates for all on road vehicles and less than 1/100% of Heavy Duty Vehicles (see Table 3. GHG–2: Modeled Project CO₂ Emissions and ARB Greenhouse Gas contribution for Transportation Sector). The project related contributions would occur only during the implementation of the Project. No operational GHG contributing emissions are associated with the project. Emissions contributing to GHG associated with the project would be less than significant.

Table 3. GHG–01: Mendocino County 2010 Estimated Criteria Pollutant (GHG contributors) and Modeled Project related Emissions

	ROG	NO _x	CO	PM ¹⁰	PM ^{2.5}	CO ₂
tons/day ₁ (annual average)	11 (4015)	12 (4380)	65 (23725)	21 (7665)	5 (1825)	Not defined
<u>Project Total</u> ₂ Percent of Annual Estimates	<u>0.40</u> 0.00996%	<u>3.47</u> 0.07922%	<u>1.65</u> 0.00695%	<u>0.81</u> 0.01057%	<u>0.14</u> 0.00767%	<u>429.91</u>

Table GHG 02: Modeled Project CO₂ Emissions and ARB Greenhouse Gas contribution for Transportation Sector

Total project CO ₂ emissions ₂ In metric tons	2008 California Transportation Sector CO ₂ GHG contributions ₃ In million metric tons	
Year 2012	All On Road Vehicle	Heavy Duty Vehicle
429.91	163.3	34.79
Project % of 2008 Sector Contributions	0.000263264%	0.001235729%

¹ ARB Almanac 2009 – Appendix A: County Level Emissions and Air Quality by Air Basin

² California Emissions Estimation Modeler (CalEEMod) Version 2011.1 February 2011

³ Air Resources Board California Greenhouse Gas Inventory 2000 – 2008. Updated May 2010

- b) As stated in “Discussion A” above, the State has not developed specific GHG thresholds of significance for use in preparing environmental analyses under CEQA, and the Mendocino County Air Quality Management District has not adopted GHG thresholds to determine significance. The Association of Environmental Professionals’ document *Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents*, states that emissions for criteria pollutants tend to follow similar patterns as the emissions for GHG emissions”(AEP 2007). Therefore, it is reasonable to assume that if all other pollutants from the Project are determined to be less than significant, the CO₂ emissions can also be deemed less than significant. The proposed Dune Rehabilitation Project would not violate Mendocino County’s air quality standards and would not result in a cumulatively considerable increase in emissions. Therefore, the proposed Dune Rehabilitation Project would not generate significant GHG emissions and would therefore not conflict with the current State and Mendocino County guidelines or any applicable plans, policies or regulations concerning GHG emissions.

To reduce potential GHG emissions due to construction activities, the project would undertake the following best management practices:

- Use alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment as feasible.
- Use local (within 100 miles) building materials of at least ten percent.
- Recycle at least 50 percent of construction waste or demolition materials.

In addition, the project would implement Standard Project Requirements to limit impacts to air quality and reduce GHG emissions during project activities. Implementation of these project requirements would ensure that the project would have a less than significant impact.

VIII. HAZARDS AND HAZARDOUS MATERIALS.

ENVIRONMENTAL SETTING

The haul road was originally part of a rail line constructed in 1916 by Union Lumber Company to carry timber from the Ten Mile River drainage to the mill site in Fort Bragg. Tracks were removed and the rail alignment was converted to a road for use by logging trucks in 1949. Portions of this paved "Haul Road" are now part of the MacKerricher Coastal Trail, open to foot traffic and in some areas bicycle and equestrian use. The southern portion of this trail currently starts at the northern abutment of the Pudding Creek Trestle. The northern portion runs beyond the Inglenook Fen-Ten Mile Dunes Natural Preserve boundary and continues east below the Ten Mile River Bridge onto private property. Between Ward Avenue and the Ten Mile River the haul road has been severely eroded, washed away or covered by drifting sand over large sections of the roadway, and is no longer contiguous with the road within the park. Winter storm events, erosion and exposure to harsh coastal conditions continue to cause deterioration.

There is no known hazardous contamination of the area where the haul road is located, and there is no indication that the project area contains any hazardous waste, debris, or soils. It's possible that wooden structural elements or ties from the original rail line remain within the historic road alignment and make up parts of the road base and creek crossings. These materials may consist of pressure-treated wood, which contains several potentially hazardous materials (e.g., arsenic), or weatherproofed in some manner possibly with creosote, a human carcinogen. Herbicides (imazapyr and glyphosate) are currently being used to remove European beachgrass and are proposed for use to continue removing nonnative invasive plants. By applying herbicide according to the manufacturer's label, there is no significant threat of hazardous contamination.

The project site is located in a remote area of MacKerricher State Park with limited vehicle access. No fuel storage facilities exist within or adjacent to the project area. During the proposed project fuel would be transported to approved locations outside of sensitive resource areas for refueling of heavy equipment.

There are eleven schools and one district school office located within a two and a half-mile radius of the project site. None of the schools are within a quarter-mile of the project area.

The Fort Bragg Airport is located approximately 4 miles (6.4 km) south of the project area. There are approximately 12 single engine aircraft based at this privately owned airport. Operations average 64 flights per month. Another small private airstrip is located approximately 10 miles (16.1 km) southwest of the Preserve. Activity at this location is unknown, and there is no published approach for this airstrip. Air traffic from both airstrips would only overfly the project area.

State Route (Highway) 1 is a designated truck route occasionally used by trucks transporting Level I, II, and III hazardous materials. The project location is approximately 500 feet (152.4 m) from the closest approach of the southbound lane of Highway 1 as it passes over the Ten Mile River Bridge.

Maintenance yards for MacKerricher SP are several miles south of the proposed project area and none of the unit's facilities use or store substantial amounts of hazardous materials on-site.

The project area is situated in coastal dunes, coastal strand and coastal scrub habitat. Vegetation consists mostly of non-native European beachgrass, coastal mat species and some wetland species in riparian areas. Fuel for wildfires is extremely limited.

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

DISCUSSION

- a-b) The proposed project does not involve the disposal of hazardous materials. However, project activities would require the use of potentially hazardous materials such as herbicides, fuels, oils, and solvents. These materials are generally used for herbicide application, excavation equipment, and other vehicles, and would be contained in vessels engineered and designed for safe storage. Due to the remote location of the project site, it would not be practical or efficient to drive to a refueling station. Routine transportation of small amounts of diesel fuel to an appropriate staging area near the work site and refueling of vehicles would be necessary. A light-duty truck equipped with an approved 100-gallon fuel tank would be used for this purpose. Fueling of equipment and vehicles would only occur at designated locations outside of sensitive areas and at least 200 feet (61 meters) from stream courses and the ocean. Designated refueling sites would be located on

existing roadway surfaces and equipment operators would be required to use a portable containment device beneath equipment before pumping fuel. A Spill Kit would be stored at the designated refueling location and project crew members and contractors would be trained in its proper use. All maintenance of project vehicles would occur off-site at the MacKerricher State Park maintenance yard, the maintenance shop at District Headquarters at Russian Gulch, or at a contractor's private facility. Large quantities of fuel or hazardous materials would not be stored on-site.

To avoid significant hazard to the public or environment from the use of herbicides for the treatment of iceplant and European beachgrass, herbicides that have been shown to be of low toxicity have been proposed for treating invasive weeds. Additionally, their use is minimized by integrating non-chemical methods to remove weeds. Implementation of Standard Project Requirements HAZ 1 and HAZ 2, which includes public and environmental safety requirements and procedures, would ensure that potential impacts remain at a less than significant level.

To minimize the use of herbicides, CSP has evaluated alternative options on how to manage the targeted invasive plant species within the project area through an Integrated Pest Management (IPM) approach (Appendix E. Integrated Pest Management Analysis). This process shows that foliar spraying herbicide and hand pulling are the two methods that achieve the stated goals of the project. These methods, when implemented in conjunction with non-herbicide methods, allow CSP to use many facets of an IPM program.

CSP proposes to treat European beachgrass in the project area (See Project Description) with an herbicide solution of 1.5% imazapyr (formulations: Habitat, Polaris, or Polaris AC Complete), 2% glyphosate (Rodeo, Aquamaster, or Aquaneat), 1% methylated seed oil (Competitor or Helena M.O.C.) and marker dye (HI-Light Blue, Colorfast Purple Dye, Spray Indicator XL, or equivalent) and treat iceplant in the mitigation area (see Appendix E. Mitigation) with 1.6-2% glyphosate (Rodeo, Aquamaster, or Aquaneat), 1.5% methylated seed oil (Competitor or Helena M.O.C.) and marker dye (HI-Light Blue, Colorfast Purple Dye, Spray Indicator XL, or equivalent). Application treatments for European beachgrass and iceplant will be 1-2 times per year and the annual total application of any area will not to exceed 0.75 gal/acre of imazapyr (or equivalent active ingredient per acre), 2 gal/acre of glyphosate, and methylated seed oil will not be greater than 1% for large volume applications. All directions for use, safety precautions, and general information are given in the Material Safety Data Sheets (MSDS) and specimen labels (Appendix E. Integrated Pest Management Analysis).

Based on current research about toxicity, mobility, and persistence in the environment, CSP proposes to use glyphosate and imazapyr to minimize any potential significant impacts to the environment or human or wildlife health. If new information showing significant or potentially significant effects not previously analyzed by the California Department of Pesticide Regulation (DPR) becomes available, CSP will consult with DPR and the Mendocino County agricultural commissioner to determine the appropriate course of action.

Spills, upsets, or other work-related accidents could result in a release of fuels, herbicides, or other hazardous substances into the environment. Accidental spills or improper use of these materials could result in a significant impact to Inglenook Creek, Fen Creek, Ten Mile River and the Pacific Ocean. Implementation of Standard Project Requirement HAZMAT 1, which includes the development of a spill prevention and cleanup plan, would reduce the potential for these incidents to occur and ensure impacts would remain at a less than significant level.

- c) There are no schools or proposed schools within one-quarter mile of the Dune Rehabilitation Project. The nearest school (Three Rivers Learning Center) is located approximately 3 miles (4.8 km) from the project site. No impact.
- d) The Ten Mile Haul Road is not included on a list of hazardous materials sites (Cortese List) compiled by the California Department of Toxic Substances Control, pursuant to Government Code §65962.5. No impact.
- e-f) The proposed project site is not located within an airport land use plan, within two miles of a public airport, or in the vicinity of a private air strip. As noted in the Environmental Setting above, the privately owned Fort Bragg Airport is located approximately 4 to 7 miles (6.4 to 11.3 km) south of the project area and there is a private air strip approximately 10 miles (16.1 km) to the southwest. No work associated with the project would interfere with airport operations. No impact.
- g) All proposed project activities would occur within the boundaries of MacKerricher SP and would not restrict access to or block any public road. Most areas within the Preserve would remain open to the public during the project, although access to the areas under active construction would be restricted to authorized personnel only. A general safety protocol for backcountry heavy equipment operations has been adopted by the North Coast Redwoods District, California State Parks (Merrill 2003) for use within state parks and would be implemented as part of this project. This protocol outlines broad safety issues common to all projects and presents guidelines on how to address those issues. The project would not impact emergency response or evacuation plans. Therefore, there would be no impact.
- h) The Dune Rehabilitation Project area is located primarily in coastal dune habitat, with some areas of coastal scrub, coastal wetland and riparian habitat. This vegetation does not pose a high fire hazard, but equipment could get very hot with extended use and would sometimes be in close proximity to dry vegetation, especially dead European beachgrass. Improperly outfitted exhaust systems or friction between metal parts and/or rocks could generate sparks, resulting in a fire. Implementation of Project Requirement HAZMAT-3, would reduce the potential for fire-related adverse impacts and ensure impacts from this project remain at a less than significant level.

IX. HYDROLOGY AND WATER QUALITY.

ENVIRONMENTAL SETTING

Excluding the Ten Mile River, two primary streams, Inglenook Creek and Fen Creek, flow through the Preserve. These streams drain upland forested and grassland marine terraces with scattered rural residential housing. Perennial and ephemeral seeps and rain water catchments in dune swales also occur throughout the Preserve (see Appendix A: Preserve Hydrology Map).

The hydrological conditions of the Preserve are strongly influenced by the “Mediterranean maritime”, which aptly describes the climate on the Mendocino coast and its proximity to the ocean. The climate consists of moderate temperatures with small daily and seasonal fluctuations, frequent dense fogs, and northwesterly winds. The average annual temperature is about 54 degrees F (12.2 ° C). The rainy season is October through April with average annual precipitation in the park around 40 inches (1.02 m). This can vary from 20 to 80 inches (0.51 to 2.03 m) (CSP 1995).

Between 6,000 and 10,000 years ago, in the Fen Creek watershed within the Preserve, dunes formed a barrier to the outlet of surface and ground water, forming Sandhill Lake and Inglenook Fen (Fox and Barry 1977). Six surface streams drain the Fen Creek watershed, although sub-surface flows are considered of equal or greater importance in the overall supply of water to the Fen (Erman and Roby 1977). A fen is a wetland of more recently accumulated peat deposits with a higher pH than a more acidic bog, and is generally considered transitional to a bog as peat and organic sediments accumulate. Inglenook Fen’s pH is influenced by the supply of water rich in calcium and magnesium, generally resulting in a mildly acidic to alkaline pH. Volume of incoming water, climate, and other factors control the rate of succession of a fen to a bog.

Inglenook Creek

The Inglenook watershed is slightly less than 1100 acres (445 hectares) with the Inglenook Creek main stem flowing west- to northwestward between the north and middle dune lobes, about 2.2 miles (3.5 kilometers) in total length. Using geomorphologic measurements and modeled flow rates for the Inglenook watershed, projected flow volumes for estimated flood events were calculated by CGS (Reynolds, 2011). At the Inglenook Creek crossing, flow at the bankfull stage (return period, RP, is approximately 1.5 years) is estimated to be on the order of 127 feet³ (3.6 meters³) per second. Flows for the 2, 5, 10, and 100-year storm events were estimated to be 177, 353, 494, and 812 feet³ per second (5, 10, 14, and 23 meters³ per second), respectively. Additional hydrological influence is generated by high energy storm waves and surge and extreme tides as evidenced by the large woody debris present in the downstream pool and on the haul road immediately north of the crossing.

Inglenook Creek passes under the haul road via a 5 foot (1.5meter) corrugated culvert roughly 60 feet (18 meters) long. At least one large diameter log was reported to have been lodged within the culvert in 2004, but a flow was still evident. Heavy brush on both sides of the Inglenook Creek crossing and no visible water flow into the downstream pool suggest that the culvert may be further blocked. Literature suggests the culvert is set to an angle at grade of the thalweg, the lowest point in the channel, as to encompass the entire length with fill (Wollenburg, 2004). In addition to old trestle materials and rock dumped from rail cars, fill at the crossing’s west side includes concrete blocks greater than several feet in diameter which may be armoring against upstream tidal surges. Ground Penetrating Radar suggests the culvert is bedded in sand below the ballast and fill materials roughly 6 feet (1.8m) deep.

Fen Creek

The Fen Creek watershed covers just over 1630 acres (660 hectares) with the main stem of Fen Creek

flowing between the middle and south dune lobes, about 3.4 miles (5.4 kilometers) in total length. Using geomorphological measurements and modeled flow rates for the Fen Creek Watershed, projected flow volumes for estimated flood events were calculated by CGS (Reynolds, 2011). At the Fen Creek crossing, flow at the bankfull stage (return period, RP, is approximately 1.5 years) is estimated to be on the order of 177 feet³ (5 meters³) per second. Flows for the 2, 5, 10, and 100-year storm events were estimated to be 283, 530, 671, and 1130 feet³ per second (8, 15, 19, and 32 meters³ per second), respectively.

Fen Creek passes under the haul road via a 5 foot (1.5 meter) corrugated culvert roughly 60 foot (18 meter) long. The western end of the pipe is rusted away at the base, but the length is still intact and remains unblocked. However, the east side of the culvert is overgrown with willow. The water course is open just upstream from the crossing. Ground Penetrating Radar suggests this culvert may be bedded in ballast materials roughly 6 feet (1.8 meters) deep.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place structures that would impede or redirect flood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

flows within a 100-year flood hazard area?

- i) Expose people or structures to a significant risk of loss, injury, or death from flooding, including flooding resulting from the failure of a levee or dam?
- j) Result in inundation by seiche, tsunami, or mudflow?

DISCUSSION:

- a) During excavation and removal of remnant asphalt, road base and culverts, a release of sediment to Fen Creek, Inglenook Creek and their associated coastal lagoons could occur. Therefore, this project is likely to increase the short-term potential for the introduction of increased levels of sediment to the creeks. Other potential impacts to water quality could result from releases of fuels or other fluids from vehicles and equipment during the excavation. These activities could result in a violation of water quality standards and waste discharge requirements. The removal of culverts and debris from the channels can be accomplished with conventional excavation, primarily a track-mounted excavator. To minimize the potential for impacts to the streams, paired sandbag cofferdams would be used for dewatering, to provide access to the work area, and minimize the introduction of fine sediment. Standard project requirements have been developed and will be implemented to avoid potential impacts (see HYDRO-1).

During the permissible construction period, July through September, it is anticipated that the flow in Fen Creek will be on the order of 1.06 feet³ (0.03 meters³) per seconds (Erman and Roby, 1977). Based upon CGS stream survey data, flows of this magnitude would result in a wetted channel approximately 3.3 feet (1 meter) wide with a maximum depth of 0.5 feet (0.15 meters). These wetted channel dimensions are very amenable to simple sandbag cofferdam diversion.

Water impounded at the upstream cofferdam would be pumped around the work area and discharged downstream of the downstream cofferdam. If the discharged water is too turbid, the discharge would be pumped through a sediment bag (Figure 3.HYDRO.a-01) prior to discharge back into the channel.

Prior to any incursion into the channel, fish netting (barriers) would be placed approximately 33 feet (10 meters) up and downstream of the cofferdams. The actual location of the fish netting would be determined by the project biologist to optimize their effectiveness. The channel between the fish barriers would be examined for the presence of fish and other species of concern. If are found, they would be removed prior to initiating instream activities.

If fish need to be relocated, the project biologist or appropriately trained designee would determine the best site(s) for relocation. Fish may be relocated either upstream or downstream depending upon a number of factors, including but not limited to, quality of nearby habitat, number and age class of fish at any given location, number of fish needing relocation, avoidance of overcrowding, and minimizing stress on the fish. The project biologist would, prior to initiating work, designate several relocation sites best suited to address the aforementioned criteria. Implementation of Standard Project Requirements (GEO-1 and HYDRO-1) would ensure that impacts on water quality would remain at a less than significant level.



Figure 3.HYDRO.a-01: Typical Setup of Sediment Capture Bag

- b) The proposed project does not involve the extraction of groundwater or activities that would significantly alter groundwater recharge or lower the existing groundwater table levels. The removal of the remnant haul road and two culverts would likely improve natural water flow through the dune system by eliminating barriers and impediments. The project would have no impact.
- c) The proposed project would remove a remnant haul road and two culverts with the goal of returning the dune system to a more natural state. Currently the remnant road acts as a barrier not only to the movement of sand but also natural drainage patterns through the dune system. After the removal of the road and invasive exotic European beachgrass, and the return of more natural dune dynamics, the steep dunes along the shoreline west of the old road would begin to decrease in size and the deflation plains that have formed east of the old road would begin to fill with sand. Drainage patterns would likely change within the dune system due to the changes in dune topography, but it is unusual to encounter flowing water over the dunes due to the porous nature of the sand. Where culverts are removed at Fen Creek and Inglenook, the creeks would continue to remain true to their upland channels and downstream lagoon outlets to the ocean, but like any dynamic system, the creeks could alter course in the future due to flooding or natural obstructions. The project would include alterations to short reaches along Fen Creek and Inglenook Creek through the removal of culverts, asphalt and road base and the re-establishment of historical streambank morphology and stream courses. Channel restoration would involve the removal of roadbed and railbed materials, culverts, and other debris dumped into the channel at the crossings. This would be accomplished using conventional excavation. Once foreign material is removed and native material is exposed, restoration activities would establish bank and channel capacities to withstand calculated flows determined by local geomorphological reference. Native vegetation salvaged from the immediate area may be planted where appropriate to enhance habitat consistent with surrounding riparian area. Implementation of Standard Project Requirements (AIR-2, GEO-1 and HYDRO-1) would ensure that impacts on drainage patterns would remain at a less than significant level.
- d) The proposed project would remove remnant road sections and two culverts which currently act as barriers to natural dune formation and dune hydrology. These changes would not substantially increase the rate or amount of surface runoff or increase the potential for onsite or offsite flooding. The overall goal of the project is to return the dune system to a more natural state, which is likely to improve drainage within the Preserve in the long-term. Therefore, the project would have no impact.

- e) The proposed project would not involve changing or altering any stormwater runoff management system and no substantial additional sources of polluted runoff would be expected from this project. Implementation of Standard Project Requirements (AIR-2, GEO-1 and HYDRO-1) would ensure that potential runoff impacts would remain at a less than significant level.
- f) Proposed project activities such as removal of the remnant road, excavation of road base and removal of culverts at Fen Creek and Inglenook Creek could potentially degrade water quality in the short-term. In addition to channel dewatering (described in Hydrology and Water Quality Discussion [a](#)), integration of best management practices, such as coir mats and logs to control soil erosion and runoff, and emergency response spill release kits for vehicle or equipment fluids, and the implementation of Standard Project Requirements (AIR-2, GEO-1 and HYDRO-1) would ensure that potential impacts to water quality remain at a less than significant level.
- g) Some portions of the project area are located within the 100-year floodplain of Fen Creek, Inglenook Creek and Ten Mile River according to the official Flood Insurance Rate Map prepared by the Federal Emergency Management Agency (FEMA 1983). However, this project does not include the construction of housing. This project would have no impact.
- h) One of the goals of the proposed project is to restore natural stream flow at Fen Creek and Inglenook creek by removing two existing culverts. Currently, these culverts are partially blocked by debris from upstream flows and driftwood from tidal influences. Stream flow has been channeled through these culverts at least since 1949 when the rail bed was converted to a truck road. Once the culverts are removed and the stream beds have been restored to a more natural state stream flow would be redirected as each creek reestablishes its natural course. This would result in benefits to plant and animal communities and decrease the danger of flooding. The proposed project does not include the placement of any structures that would impede or redirect flood flows within a 100-year floodplain and would therefore have no impact.
- i) The project would not expose people or structures to an increased significant risk of loss, injury, or death from flooding, including flooding resulting from the failure of a levee or dam. Fen Creek and Inglenook Creek are subject to seasonal flooding but work to remove the culverts would be scheduled to avoid periods of high flow for both safety reasons and to minimize impacts to sensitive aquatic species. Small check-dams may be constructed to temporarily divert stream flow during removal of the culverts, but these dams would not pose a significant risk to construction crews or park visitors. No structures exist within the project area. The project would have no impact.
- j) The proposed project would take place in a coastal dune habitat that lies adjacent to the Pacific Ocean. Many locations along the coastline are at risk of inundation by a tsunami, including the proposed project area. A recent tsunami in March 2011 produced damaging waves at Noyo Harbor in Fort Bragg. While inundation is possible, this project would not increase the potential. The project area would not be susceptible to a seiche (wave generated in an enclosed water body) and there is no reasonable expectation that the area is subject to a mudflow. The project would have no impact.

X. LAND USE AND PLANNING.

ENVIRONMENTAL SETTING

The Dune Rehabilitation Project area is located within MacKerricher State Park just north of the city of Fort Bragg in Mendocino County. MacKerricher State Park is a 2,520-acre coastal recreation area zoned as Open Space in the Mendocino County General Plan (MCGP, 1981) and Coastal Element (1991). Open Space lands are those considered unsuitable for development or most valuable left in the undeveloped natural state.

The entirety of the Preserve lies within the California Coastal Zone, consequently potential human-caused alteration (e.g., development) or impacts to “environmentally sensitive habitats (ESHAs)” are subject to review under the California Coastal Act, Article 5, Section 30240(a). The provisions of the Coastal Act are administered locally by the Mendocino County Planning Department through the Coastal Element of the County General Plan. Chapter 3 of the Coastal Element describes the specific development activities that are permitted within ESHAs, including coastal dunes and wetlands. In addition to its location within an area designated as a Natural Preserve, the Dune Rehabilitation Project site lies adjacent to the Pacific Ocean on the west, the Ten Mile River to the north and areas of private property to the east and southeast. Adjacent properties are zoned rural residential.

Beyond the Open Space designation, the Inglenook Fen – Ten Mile Dunes Natural Preserve was established within MacKerricher State Park on June 21, 1995, by the California State Park and Recreation Commission to “provide for recognition and protection of the unit’s important natural resources...” (CSP 1995c). The General Plan “directs that 1285 acres of land within MacKerricher State Park be classified as the Inglenook Fen-Ten Mile Dunes Natural Preserve to recognize the regional and statewide significance of the outstanding natural values of the Inglenook Fen complex and the Ten Mile Dunes” (CSP 1995d). The State Park and Recreation Commission resolution establishing the Preserve (CSP 1995c) specifically distinguishes wetlands and riparian areas, a rare coastal dune ecosystem, the only remaining coastal fen in California, eight rare natural communities, and eight special plant species as the important elements. Vehicle use within the boundaries of the Preserve is restricted to emergency access and specific short-term projects for resource management.

The California Public Resources Code provides for the classification of natural preserves within the State Parks system, as follows:

Natural preserves consist of distinct nonmarine areas of outstanding natural or scientific significance established within the boundaries of other state park system units. The purpose of natural preserves shall be to preserve such features as rare or endangered plant and animal species and their supporting ecosystems, representative examples of plant or animal communities existing in California prior to the impact of civilization, geological features illustrative of geological processes, significant fossil occurrences or geological features of cultural or economic interest, or topographic features illustrative of representative or unique biogeographical patterns. Areas set aside as natural preserves shall be of sufficient size to allow, where possible, the natural dynamics of ecological interaction to continue without interference, and to provide, in all cases, a practicable management unit. Habitat manipulation shall be permitted only in those areas found by scientific analysis to require manipulation to preserve the species or associations that constitute the basis for the establishment of the natural preserve. (California Public Resources Code, Sec. 5019.71.)

The Department Operations Manual, Chapter 0300, provides further clarification and authority for the protection of ecosystem processes and the various biological elements, such as plants, animals, and

fungi that function within those ecosystems. Two policies that are particularly pertinent to the proposed project include:

0306.5 Stream Restoration Policy

Stream restoration efforts would emphasize the conditions of dynamic equilibrium, whereby the stream system would be self-maintaining under a variety of natural conditions and flows, once properly designed and configured.

When stream restoration becomes necessary, it is the policy of the Department to first consider and use natural channel design methodology in lieu of traditional engineering practices that focus on symptoms rather than underlying causes. Such natural methodology would use native materials and take into account natural channel patterns, profiles and dimensions to the greatest extent practicable.

0310.1.1 Plant Management Policy

It is the policy of the Department to acquire, preserve, and interpret outstanding examples of native California species; and to acquire, perpetuate, and interpret natural plant communities, associations, natural processes (e.g. succession), and examples of rare, endangered, endemic, or otherwise sensitive native California plants. This would be done in concert with other agencies and organizations.

To maintain native plants as part of the natural ecosystems, the Department would:

- a. Preserve and restore the natural abundance, diversity, dynamics, distributions, stand structure and species composition, and the communities and ecosystems in which they occur;
- b. Protect state and federally-listed threatened, endangered, rare, or otherwise sensitive species;
- c. Restore native plant populations in parks where they have been extirpated by past human-caused actions;
- d. Minimize negative human impacts on native plants, populations, communities, ecosystems, and the processes that sustain them while providing opportunities for the public to experience plants native to California; and
- e. Protect human health and safety (e.g. hazard tree removal).

The protection and restoration of all naturally occurring (established and living independent of human activities or influences) and native (extant prior to Euro-American human contact) biological elements in the Preserve are consistent with the provisions established within the Coastal Act, the California Public Resources Code, and the MacKerricher State Park General Plan (CSP 1995g), and California State Parks Department Operations Manual policies and directives.

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

DISCUSSION

- a) The proposed project site is wholly within the boundaries of MacKerricher State Park. The site does not contain or define an established community and no project activities would disrupt or divide any community functions. Project activities would not prevent access to adjacent landowners. No impact.

- b-c) Development and uses within MacKerricher State Park are guided by California State Parks policies, the park's General Plan, Mendocino County's Local Coastal Plan (Coastal Element of the Mendocino County General Plan), and the regulations of various agencies with jurisdiction over some or all areas of the park. Vehicle and equipment use during the project would be necessary to complete the restoration of the dune system. Project activity would be concentrated along the existing haul road and adjacent disturbed areas. State Parks staff and the project contractors would adopt best management practices to limit impacts to the immediate project area. The project activity would be temporary in nature and would benefit the dune system in the long term. No other project elements would be in conflict with the zoning, regulatory policies, land use plans, conservation plans or ordinances for this area. All appropriate consultation and permits would be acquired, in compliance with all applicable local, state, and federal requirements. Implementation of project requirements and mitigation measures proposed in this document would reduce any potential adverse environmental impacts associated with project implementation to a less than significant level.

XI. MINERAL RESOURCES.

ENVIRONMENTAL SETTING

The main mineral resource in Mendocino County is aggregate, primarily sand and gravels mined from alluvial deposits (Mendocino County GP, 2009). No significant mineral resources have been identified within the boundaries of the project area. Mineral resource extraction on CSP-owned lands is not permitted under the Department's Resource Management Directives.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Result in the loss of availability of a known mineral resource that is or would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) The project would not result in the loss of availability of a known mineral resource, as no known mineral resources exist within the project boundary. The project would have no impact.
- b) The project would not result in the loss of availability of a locally important mineral resource recovery site, as none exist within the project boundary. The project would have no impact.

XII. NOISE.

ENVIRONMENTAL SETTING

The Dune Rehabilitation Project site is located within the Inglenook Fen – Ten Mile Dunes Natural Preserve. It is one of the more remote locations within MacKerricher State Park. The most obvious and consistent source of ambient noise is the sound of the ocean as waves crash ashore Ten Mile Beach.

The nearest roads to the Preserve are Ward Avenue to the south and Highway 1 to the east. Noise levels from human activity are greatest near these locations due to vehicle traffic, proximity to residential areas, and higher concentrations of visitors at popular access points. At the northern end of the Preserve vehicle traffic can be seen but is rarely heard as it passes over the Ten Mile River bridge to the east. Private landowners and associated activities north of the Ten Mile River are too distant to be a factor in producing noise that would affect most visitors.

The majority of the proposed project would be concentrated along the remnant haul road and remote from residential and commercial areas. (See map) However, at the northern end of the Preserve a rural residential area sits 0.12 mile (200 m) across the Ten Mile River from the project site and potential staging area.

In addition to the road removal, excavation work to remove several culverts would be completed at Fen Creek and Inglenook Creek. The nearest residential areas to the Inglenook Creek crossing are within approximately 0.43 mile (700 m) to the east at Beal Lane and Ocean View Drive. At the Fen Creek crossing the nearest residence is approximately 0.62 mile (1000 km) to the east.

Part of the proposed project includes treatment of European beachgrass and removal of non-native trees and shrubs in backdune areas. Some of these locations come within 160 to 375 feet (50 to 115 m) of adjacent private property.

The nearest airport is located approximately 4 miles south of the Project site at the northern city limits of Fort Bragg. There are approximately a dozen single engine aircraft based at this privately owned airport. There are no commercial flights available from this location. Occasional air traffic is audible as small planes fly along the coast or over the dunes. Engine noise from small fishing boats off-shore may be present as well.

There are no known regulations governing noise levels for the project site. Standards for residential areas and public spaces [MCGP, Noise Policies, Policy DE-100] allow for a maximum exterior noise level of 50 to 60 dBA from 7am-10pm.

Project-related sources of noise would include vehicles and equipment needed to complete the Project objectives. These may include chainsaws, off-road vehicles, small trucks, tractors, excavators, and dump trucks.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Generate or expose people to noise levels in excess of standards established in a local general plan or noise ordinance, or in other applicable local, state, or federal standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generate or expose people to excessive groundborne vibrations or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Create a substantial permanent increase in ambient noise levels in the vicinity of the project (above levels without the project)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a substantial temporary or periodic increase in ambient noise levels in the vicinity of the project, in excess of noise levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport? If so, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be in the vicinity of a private airstrip? If so, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

a) As noted in the Environmental Setting there are no known regulations governing noise levels for the project site. Standards for residential areas and public spaces [MCGP, Noise Policies, Policy DE-100] allow for a maximum exterior noise level of 50 to 60 dBA from 7am-10pm. However, location of the project site immediately adjacent to the ocean results in an ambient noise level that regularly exceeds the recommended 60 dBA. Where existing ambient noise levels exceed these standards, the ambient noise level as measured in dBA Leq (30 minutes) is the highest allowable noise level. There are no noise-sensitive human land uses (sensitive receptors) such as churches, schools, or residences located in the immediate vicinity of the Dune Rehabilitation Project area that would be substantially affected by the proposed construction-related activities. Construction noise levels at and near the project area would fluctuate, depending on the type and number of construction equipment operating at any given time, and would exceed ambient noise standards in the immediate vicinity of the project work site during some stages of the project. The distance from most vacation rentals and private residences located to the north of the Ten Mile River and on the eastern and southern boundaries of the Preserve would be sufficient to prevent objectionable levels of noise. Many of these homes are located adjacent to Highway 1 and are closer to the highway and its routine traffic noise than to the proposed project area. Under certain conditions and during certain phases of the project equipment noise could potentially disturb park visitors using open areas on the beach and in the dunes, as well as residents of homes located directly on the Ten Mile River and near non-native invasive plant treatment areas in the backdunes. Project equipment would include chainsaws and all-terrain vehicles, but this stage of the project would be focused in small areas and short in duration. Depending on the specific construction activities being

performed, short-term increases in ambient noise levels could result in speech interference at the work site, making it difficult for project workers to communicate verbally with each other. Taking all these factors into consideration, construction-generated noise would potentially have a short-term impact. Implementation of Standard Project Requirements would ensure that potential noise impacts remain less than significant.

- b) Construction activity would not involve the use of explosives, pile driving, or other intensive construction techniques that could generate significant ground vibration or noise. Minor vibration immediately adjacent to excavating equipment would only be generated on a short-term basis. Therefore, ground-borne vibration or noise generated by the project would have a less than significant impact.
- c) Project-related noise would only occur during actual construction. Once the project is completed, all noise-generating equipment would be removed from the site. Nothing within the scope of the proposed project would result in a permanent increase in ambient noise levels. Therefore, the project would have no impact.
- d) See discussion (a) above. Implementation of Standard Project Requirements Noise 1 would ensure that potential noise impacts remain less than significant.
- e-f) This project is not located within an airport land use plan, within two miles (3.2 km) of a public airport, or in the vicinity of a private air strip. There is one privately owned airport (Fort Bragg Airport) and one small private airstrip within 10 miles (16 km) of the project site, but noise from the small aircraft operating from these locations is extremely limited with only the occasional fly-over occurring. There would be no exposure to excessive noise levels from aircraft. There would be no impact.

XIII. POPULATION AND HOUSING

ENVIRONMENTAL SETTING

The Inglebrook Fen – Ten Mile Dunes Natural Preserve is located within MacKerricher State Park in Mendocino County, on the northern California coast. The park is bounded on the west by the Pacific Ocean, and its southern end adjoins the city limits of Fort Bragg. In 2009, approximately eight percent of the Mendocino County's total population of 89,938 people resided in Fort Bragg. The city's population was then estimated to be 6,848 residents. No residences are located within the project boundaries. As a Natural Preserve, the development of any type of permanent structure or feature is not a planned use for this part of the park. The Preserve is both a local recreational resource and a destination park, used by locals and out-of-town visitors alike. Aside from the campground's temporary accommodations and associated facilities in other areas, the park does not offer residential opportunities within its boundaries, other than a small residential area for staff housing located near the park entrance and maintenance yard. These facilities are 1.3 to 4.4 miles (2.1 to 7.1 km) south of the project area.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) The project would have no housing component and all work would take place within the confines of the park boundaries with no additions to the existing infrastructure. The project would have no impact.
- b-c) The project is a resource management project in a Natural Preserve. The project would neither modify nor displace any existing housing nor displace any people, either temporarily or permanently. Therefore the project would have no impact.

XIV. PUBLIC SERVICES.

ENVIRONMENTAL SETTING

The Inglenook Fen – Ten Mile Dunes Natural Preserve is located at the northern end of MacKerricher State Park. The Park is bordered on the south by the City of Fort Bragg (population around 7,000), on the north by the Ten Mile River, on the east by the Mendocino County unincorporated community of Cleone, and on the west by the Pacific Ocean. The project area is located along a 3-mile (4.8 km) stretch of beach and coastal dunes between Ward Avenue and the Ten Mile River. Emergency access to the project site is via Ward Avenue at the southern end or Highway 1, a two-lane, paved and maintained state highway to the north. There are no maintained roads in the Preserve.

State Park Peace Officers (Rangers) are trained law enforcement officers. They provide immediate police protection within the park boundaries, with backup provided by both the Fort Bragg Police and Mendocino County Sheriff's Departments. Both departments have stations within 6-10 miles (10-16 km) of the proposed project site. The California Shock Trauma Air Rescue (CALSTAR 4) service helicopters, based at Ukiah Municipal Airport, provide air ambulance service for Mendocino County, available for medical emergencies, search and rescue, and fire support 24 hours a day, 7 days a week. Response time is generally under 30 minutes. The Mendocino Coast District Hospital, located in Fort Bragg, is the closest full-service medical facility to the project site. Due to its remote location in a natural setting, response time to the project location would vary depending on the nature of the emergency and the equipment needed.

Fire protection is provided by the California Department of Forestry and Fire Protection (CAL FIRE), as outlined in a Cooperative Fire Protection Agreement with CSP. They are supported by the Mendocino Fire Protection Department and the Fort Bragg Fire Department, as necessary. The CAL FIRE Fort Bragg Fire Station is approximately 5-9 miles (8-14 km) from the project site. Additional assistance is available from Parlin Fork Conservation Camp (California Department of Corrections). CAL FIRE also maintains an Air Attack Base at the Ukiah Municipal Airport, approximately 65 miles (105 km) and 15-20 minutes flight time away. The CAL FIRE Helitack Base is located in Willits, about 35 miles (56 km) to the east of Fort Bragg.

The Coast Guard maintains an active station at Noyo Harbor for search and rescue efforts and law enforcement at sea.

MacKerricher SP is in the Fort Bragg School District. There are no existing or proposed schools within one-quarter mile (0.40 km) of the Dune Rehabilitation Project site.

There are 7 state parks within 20 miles (32 km) of the project area. The proposed project area is within the boundaries of the Inglenook Fen – Ten Mile Dunes Natural Preserve at MacKerricher SP, but not within the primary visitor area. There are no facilities associated with the Preserve. A parking area at Ward Avenue which provides pedestrian and equestrian access to the beach is owned by the county. The remnant road in the Preserve is no longer intact and its impediment to natural dune dynamics and need for removal is the reason for the proposed project. MacKerricher SP is owned and operated by the California State Parks.

There are no other public facilities in the vicinity of the proposed project area.

POTENTIALLY LESS THAN
SIGNIFICANT LESS THAN

	<u>SIGNIFICANT IMPACT</u>	<u>WITH MITIGATION</u>	<u>SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Result in significant environmental impacts from construction associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) The project does not include new governmental facilities, but proposes to remove remnants of an old road along a stretch of coastal dunes and beach. Winter storms, erosion and blowing sand have made much of the original roadway impassable by vehicle for over 10 years. Designation of Preserve status within the State Park system required that public vehicle access and vehicle use on the road be prohibited. On those few portions of the haul road that remain intact, vehicle access by park rangers, staff or emergency medical services is currently allowed in the event of an emergency. However, due to relatively low visitor use of the Preserve compared to other areas of MacKerricher SP, very few incidents occur that require emergency response. After removal of the road, access by ATV or other rescue equipment would be possible along the packed, wet sand on the beach.

The project would not create any increase in public service requirements. Demand for services would be equivalent to current calls for beach rescues and other infrequent incidents associated with improper and unauthorized activities. Restoration work and alterations associated with this project would not significantly increase visitation or the demand for public services, and therefore would not necessitate the construction of new facilities. Implementation of Standard Project Requirements would ensure that potential impacts associated with the proposed project would remain at a less than significant level.

Fire Protection: Use of construction equipment around flammable vegetation presents an increased fire risk that could result in the need for CAL FIRE CDF and local fire response teams during project implementation. Any impact on services would be temporary and no elements of the project would contribute to the need for an increase in the existing level of public service. In addition, State Park Rangers would be available to respond to incidents and provide support for logistics and public safety. Implementation of Project Requirement HAZ-3, combined with the availability of on-site fire suppression equipment (fire extinguishers) would ensure that potential impacts on Fire Protection services would remain at a less than significant level.

Police Protection/Emergency Response: State Park Rangers provide law enforcement protection within MacKerricher SP. However, demand for law enforcement would be no greater than present in the project area and would not require an increase in emergency personnel. No element of the

proposed project would create a situation that would significantly increase the demand for police protection, increase staffing needs, or adversely affect emergency response times. The project would have no impact.

Schools: There are no elements of this proposed project that would affect schools. No changes would occur that would require additional school facilities or personnel. The project would have no impact.

Parks or Other Public Facilities: Access to the Inglenook-Fen Ten Mile Dunes Preserve would remain open to the public except in the immediate project area. None of the project elements would interrupt normal activities at MacKerricher SP or contribute to a significant increase in visitation. The level of required services within the park is expected to remain relatively static, subject only to seasonal fluctuations in visitor use. County administrative requirements would be equivalent to any other minor commercial construction project. The proposed project has no unique properties and would have no significant impact on other public services. The project would have no impact.

XV. RECREATION.

ENVIRONMENTAL SETTING

In 1995 California State Parks and Recreation Commission established the Inglenook Fen – Ten Mile Dunes Natural Preserve in recognition of its regional and statewide significance and to protect its important natural resources. This unique area contains wetlands and riparian areas, a rare coastal dune ecosystem, the only remaining coastal fen in California, eight rare natural communities, and eight special plant species. Home to many species of wildlife and an important stop-over for migratory birds, the Preserve also provides critical habitat for wintering and nesting Western Snowy Plovers, a federally listed threatened shorebird.

The qualities that make this area a haven for wildlife and a hotspot for rare plant communities also attract visitors who seek open space, solitude and a natural landscape relatively untouched by development. Beach combing, bird watching, photography, jogging, horseback riding and picnicking are popular recreational uses of the Preserve, but it is not uncommon for visitors to have the beach or the dunes to themselves, especially in winter.

The Inglenook Fen-Ten Mile Dunes Natural Preserve has two frequently used entry points: at the north end near the Ten Mile River Bridge; and the south end off Ward Avenue, a county road. Both locations accommodate multiple vehicles. The north access point off Highway 1 traverses a California Department of Transportation (Caltrans) right of way and private property before entering the Preserve about 300 yards (275 m) west of the bridge. Although this access has existed for many years and is used mainly by local coast residents it is not a designated trail or official State Park access. Caltrans recently installed interpretive panels, native plants, benches, new parking spaces and “coastal view” signage on the south end of the new Ten Mile River Bridge.

With only these two highly visible entry points for this 4 mile (6.4 km) long area of the Preserve, much of the use occurs near these locations. Whether visitors enter at Ward Avenue or near the Ten Mile River Bridge, the beach is the destination area for most visitors in the Preserve. At Ward Avenue, visitors can follow the old haul road a short distance north on the headlands before it ends at a major washout where a gravel ramp now leads to the beach below. At the Ten Mile area, several noticeable trails lead from the remnant track of the old road along the edge of the Ten Mile River or through the dunes to the ocean. One of these trails is the designated route to the beach for equestrian use. The portion of the Coastal Trail that runs through the Preserve travels over the wet, packed sand along the shoreline. Equestrians are directed to ride on wet sand to protect sensitive plant and animal species. Due to the dynamic nature of the shore environment, conditions along the beach and dunes are constantly changing. Visitors sometimes need to negotiate around waves and across creek outlets along the beach during high tides, storm events and seasonal flooding of creeks.

Outside of the Preserve, the old haul road spans most of the southern portion of MacKerricher State Park, and is part of the Coastal Trail. With the exception of a short detour at Lake Cleone due to a washout, visitors can walk or bicycle the old haul road route from Glass Beach across the Pudding Creek Trestle and continue north for over 3 miles (4.8 km) to Ward Avenue, where the Preserve boundary begins. Shortly beyond this point the remnant road has been completely washed out, severely eroded or covered by sand due to constant wave action, storm events and shifting sand. The remnant road north of Fen Creek sits further back in the dunes and has been spared the force of the waves but is weathered and covered in multiple areas by sand as much as 3 feet (0.91 m) deep. For this reason, the portion of the Coastal Trail that crosses the Preserve is designated along the shoreline.

Several volunteer trails have been established from nearby residential areas and from Highway 1,

which borders the Preserve in some areas to the east. These unauthorized trails are mostly used by private property owners with landholdings adjacent to the Preserve. The beaches at Inglenook Creek and Fen Creek at the remote center of the Preserve are often the destination for these local residents. These volunteer trails are visible throughout the back dune system as they meander across the dunes, cross over the old road and continue to the ocean.

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

DISCUSSION

- a) During construction activities, access to the immediate project area would be closed to visitors to ensure public safety. The Inglenook Fen-Ten Mile Dunes Natural Preserve would remain open to the public throughout the project, as would the rest of MacKerricher State Park. Temporary closure of one of the two main access points may be necessary for brief periods during the project to accommodate equipment access and provide for public safety. In this instance alternative options for access would be publicized. State Parks would provide notification in the local media and through park postings prior to and during all restoration activities that would result in closures. At no point would the proposed project require that both major access areas be closed at the same time. Access to certain areas of MacKerricher State Park is routinely restricted or closed temporarily in winter due to storms, flooding, high tides or unsafe conditions. Seasonal and temporary closures to park access in the interest of public safety or resource protection are a standard practice of park management and park policy. In general the public understands the need for these temporary restrictions to access and the constantly changing nature of our coastal environment. Such closures have not resulted in the increased use or the deterioration of other recreational parks or facilities. Transportation of road materials to the Big River quarry would require closure of the M1 road at the Big River Unit of the Mendocino Headlands State Park from the entrance gate to the quarry. Hauling would occur only during daylight hours and would not occur on weekends or holidays. The closure would be temporary and short-term, estimated to last 3 weeks. All other areas of the park would remain open. The project would not cause increased use of other parks or recreational facilities nor would the project lead to physical deterioration of any known facilities. There would be no impact.
- b) The intent of the Dune Rehabilitation Project is to restore natural dune processes that are crucial to the viability of endangered species and their habitats. The project would have a beneficial physical effect on the environment by removing a barrier to sand movement and water flow. A secondary benefit would be added safety for the public and improved recreational opportunities. The steep dunes and cliffs that form along the beach due to the impediment of the remnant road and

stabilizing effect of the invasive European beachgrass result in a narrower beach strand. During high tides and storm events, waves may reach the base of these dunes and cliffs along several narrow sections of the beach. The high water undercuts the dunes and cliffs, making them steeper over time, and visitors are required to walk, and equestrians to ride, into the back dunes in order to go around the waves. Removal of the remnant road and eradication of the beachgrass would return the dune processes to a more natural state. The result would be a wider sandy beach with a more gradual slope leading to low, undulating foredunes. Historical photos of the dunes and nesting records of the Western Snowy Plover utilizing the backdune area indicate that Ten Mile Beach had these characteristics in the past. The proposed project would not include the construction or expansion of any recreational facilities within the Preserve. The project would have no impact.

XVI. TRANSPORTATION/TRAFFIC.

ENVIRONMENTAL SETTING

The Dune Rehabilitation Project site is located within the Inglenook Fen – Ten Mile Dunes Natural Preserve at the northern end of MacKerricher State Park in Mendocino County. This portion of northern California is somewhat isolated from the more heavily populated, central part of the state, with limited transportation routes and access into and through the area. There are no maintained roads within the Preserve. The removal of a remnant haul road is the purpose of the proposed project.

The main transportation route along the Mendocino Coast is State Highway 1, also known as the Pacific Coast Highway. The section of Highway 1 adjacent to MacKerricher State Park is a two-lane, state-maintained (Caltrans) highway and has been designated as a National Scenic Byway. Due to the limited number of transportation routes along the coast, Highway 1 is also a designated truck route and vehicle traffic includes local as well as regional delivery trucks. Traffic volumes vary seasonally, with increased traffic in the spring and summer months, including tour buses and recreational vehicles. Highway 1 is the main thoroughfare through the town of Fort Bragg and seasonal traffic can cause congestion in the downtown area. Bicycle tourists traveling the popular Pacific Coast Bike Route use Highway 1 as the designated bicycle route along the Mendocino Coast, especially during the summer months. A scenic alternative allows bicyclists to access MacKerricher State Park at Mill Creek Drive, where riders can continue south along the coast on the old Haul Road and over the restored Pudding Creek Trestle into the town of Fort Bragg. North of MacKerricher State Park the Coastal Trail is part of Highway 1. Hikers exploring the Coastal Trail within the Preserve follow a route along the beach between the Ten Mile River and Ward Avenue.

Caltrans defines the Level of Service (LOS) on state routes as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists. According to Caltrans, the recommended concept Level of Service for Highway 1 on the Mendocino coast is “E”, except through the City of Fort Bragg, where no concept level of service has been established. Level of Service “E” is defined as unstable traffic flow with rapidly fluctuating speeds and flow rates, short headways, low maneuverability and low driver comfort and convenience. Highway 1 is expected to operate at or above the established concept level of service through the year 2020.

There are two public parking areas associated with the Preserve. One is located on county property at the Ward Avenue access south of the Preserve boundary. It is unpaved and has space for 8 to 10 vehicles. At the northern end of the Preserve, Caltrans has improved what used to be an informal parking area on the south end of the Ten Mile River bridge. This area is now paved and accommodates 6 vehicles. It is not considered an official access point by State Parks and is not located on State Park property.

Historically there was significant rail traffic to and through Fort Bragg. What is now the remnant “haul road” within MacKerricher State Park was once a railroad line used to transport logs and lumber to and from the Fort Bragg mill. Eventually this line was removed and converted to a paved road for truck use. Much of this route has been washed away and heavily eroded on the northern end of the Park. Rail service on the coast is currently limited to excursion trips on the California Western Railroad’s famous Skunk Train (which travels from downtown Fort Bragg east to Willits). The Skunk Train provides roundtrip sightseeing tours but no regular passenger service. The Skunk Train rail line is not contiguous with the road segment to be removed by this project.

The Fort Bragg Airport is located approximately 4 miles (6.4 km) south of the Dune Rehabilitation Project site at the northern city limits of Fort Bragg. There are approximately a dozen single engine

aircraft based at this privately owned airport. There are no commercial flights available from this location.

There is no bus service available to the project site. The closest bus stop for the Mendocino Transit Authority “BraggAbout” route is on the north end of Fort Bragg city limits, approximately 5 to 8 miles (8-13 km) south of the project area.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Cause a substantial increase in traffic, in relation to existing traffic and the capacity of the street system (i.e., a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exceed, individually or cumulatively, the level of service standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Cause a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Contain a design feature (e.g., sharp curves or a dangerous intersection) or incompatible uses (e.g., farm equipment) that would substantially increase hazards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) Most of the vehicle traffic and construction activities associated with the project would occur within the boundaries of MacKerricher SP. Traffic associated with the project would be concentrated at the northern end of the park and in the Preserve. State Parks may request use of the Caltrans “mixing table” located south of the Ten Mile River Bridge as a staging area for vehicles and equipment. Most visitor use at MacKerricher State Park takes place at the central and southern areas of the park and would therefore not be affected by project activities. None of the activities proposed as part of this project would have the potential to cause traffic delays on a public road. Highway 1 would be the primary access road leading to the project site. Vehicles would access the project area by using the gated road on the east side of Highway 1 that runs beneath the Ten Mile River Bridge. This road is located on private property and is accessed from a logging road that runs east along the southern bank of the Ten Mile River. The logging road is used by private timber operators and residents of the Ten Mile River valley with no indication that the highway intersection has safety or congestion issues. State Parks would obtain permission from property owners to use this access point during the proposed project. The general public does not have access to the gated road. Vehicles entering the road from Highway 1 would turn right onto the logging road and cause little delay in highway traffic. Project vehicle drivers would use caution before turning left from the logging road onto the gated road and yield to uphill traffic from the logging road. The intersection would be signed to notify other vehicles of construction traffic. Vehicles exiting the gated road would stop and yield to uphill traffic from the logging road before merging right. Vehicles exiting the logging road onto Highway 1 would stop and wait for traffic to pass before turning left to enter the highway and would cause no increase in congestion. The Caltrans “mixing table” is located directly

across from the entrance/exit to the logging road and could potentially be used as a pull-off area for equipment and vehicles for added safety if necessary.

Highway 1 between Little Valley Road and Westport experiences traffic volumes on average of 1,500 vehicles per day, with truck traffic representing 9% of the total vehicle traffic (Caltrans Traffic Volumes, 2009). CSP estimate that the project would require up to 15 crew transport (passenger or light-duty trucks) vehicles and 17 to 23 light-duty trucks, tractors, and haulers to complete the work. The crew vehicles would likely make one to two trips daily to and from the project site, and most would be parked and left at the staging area below the Ten Mile River Bridge. Delivery of the construction equipment would require one trip per vehicle to and from the site. Most construction vehicles would remain onsite or parked at the project staging area when not in use. Three to five dump trucks would be used to haul away materials from the road removal work site. These materials would be stockpiled at the staging area, and later transported by up to 6 highway-approved dump trucks from the staging area to an appropriate facility for reprocessing and recycling by the contractor. A portion of the materials would also be transported to the old quarry site at the Big River Unit of Mendocino Headlands State Park for use in future CSP projects. CSP estimates that it would take up to 45 days with equipment working 5 days per week for dump trucks to haul all materials from the stockpile area to disposal sites. The time required to haul materials to the Big River site would be approximately 21 days. The addition of an estimated 15 crew vehicles making an estimated 1 to 2 round-trips daily and 6 highway approved dump trucks making up to 7 trips to and from the site daily would not constitute a substantial increase in traffic volume for Highway 1 or result in additional congestion. Therefore the project would have a less than significant impact.

- b) As mentioned in the Environmental Setting, the recommended concept Level of Service for Highway 1 on the Mendocino coast at MacKerricher State Park is “E”. Level of Service “E” is defined as unstable traffic flow with rapidly fluctuating speeds and flow rates, short headways, low maneuverability and low driver comfort and convenience.

The limited number of construction-related vehicles visiting the site daily would not substantially increase traffic volume or congestion on Highway 1 in the vicinity of the project area. The project would have a less than significant impact.

- c) The project site is not located within an airport land use plan, within two miles (3.2 km) of a public airport, in the vicinity of a private air strip, and does not serve as a normal reporting point for air traffic in the area. Nothing in the proposed project would in any way affect or change existing air traffic patterns in the area. Therefore, no impact would occur as a result of this project.
- d) No portion of the project design or implementation would alter existing roads or traffic conditions, or add any element that would increase hazards to traffic or other forms of transportation. The remnant haul road north of Ward Avenue has not been a viable transportation route for vehicles since 1983 due to numerous washouts and erosion. The project would have no impact.
- e) The project area is located in the Inglenook Fen-Ten Mile Dune Preserve along a 3-mile stretch of beach and coastal dunes between Ward Avenue and the Ten Mile River. Emergency access to the Preserve is via Ward Avenue at the southern end or Highway 1 to the north. There are no maintained roads in the Preserve and the Preserve does not contain any roads open to vehicles. On those few portions of the remnant haul road that remain intact, vehicle access by park rangers, staff or emergency medical services is currently allowed in the event of an emergency. After removal of the road, access by ATV or other rescue equipment would be possible along the packed, wet sand on the beach. In the event of life-threatening emergencies, the California Shock Trauma Air Rescue (CALSTAR 4) service helicopters, based at Ukiah Municipal Airport, provide air

ambulance service for Mendocino County, available for medical emergencies, search and rescue, and fire support. Response time is generally under 30 minute. However, due to relatively low visitor use of the Preserve compared to other areas of MacKerricher SP, very few incidents occur that require emergency response. Therefore, the impact of this project on emergency access or response would be less than significant.

- f) No portion of the project design or implementation would result in reduced or inadequate parking capacity. Visitors wishing to access the Preserve at the southern end would have parking available at the Ward Avenue area. A Caltrans viewpoint also offers parking at the south end of the Ten Mile River Bridge near the northern end of the Preserve. Park staff and contractors associated with the proposed project would not access the Preserve from either of these parking areas or use the parking areas for staging or storing equipment. Potential staging areas for the project include the Caltrans mixing table south of the Ten Mile River Bridge and the area below the Ten Mile River Bridge. Use of either area would not result in inadequate parking capacity for any areas within the Preserve or MacKerricher State Park. The project would have no impact.

- g) No specific policies, plans, or programs supporting alternative transportation apply to this project. The remnant haul road is washed out, eroded or covered in sand over large segments within the Preserve. A feasibility study was conducted for a proposal to reconstruct and maintain a continuous hardened surface trail through the Preserve (Draft Feasibility Study for the Northern Segment of the MacKerricher Coastal Trail project, March 2000). Summary findings from this report found that a Coastal Trail Project in the Preserve was non-feasible due to economic costs, engineering difficulties and environmental compliance due to threatened and endangered species. Due to these findings State Parks is not currently initiating a trail project in the Preserve, nor are there plans to do so in the future. The existing Coastal Trail runs along the beach on packed or wet sand and provides users access to Ten Mile beach within the Preserve. The project would have no impact.

XVII. UTILITIES AND SERVICE SYSTEMS.

ENVIRONMENTAL SETTING

MacKerricher State Park is a 2,520-acre coastal park that borders the City of Fort Bragg to the south. Sewage for the park is transported via tight line from the park headquarters area near Lake Cleone to Fort Bragg. The underground line runs down the west side of the park along the haul road, extends under the road and adjacent Beachcomber Motel property, then follows Highway 1 south to the Fort Bragg lift station. The sewer lift station is situated on the edge of the Caltrans right of way which parallels Pudding Creek. Solid waste disposal service is provided under contract with Waste Management of Fort Bragg. Electrical power is obtained from Pacific Gas and Electric. The park supplies its own water from Lake Cleone, approximately 2 miles (3.2 km) from the southern end of the project site.

The Dune Rehabilitation Project would take place entirely within the Inglenook Fen-Ten Mile Dunes Natural Preserve. There are no utilities and no services provided within the Preserve or at the project site.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Exceed wastewater treatment restrictions or standards of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Would the construction of these facilities cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Would the construction of these facilities cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in a determination, by the wastewater treatment provider that serves or may serve the project, that it has adequate capacity to service the project's anticipated demand, in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations as they relate to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) MacKerricher State Park is within the jurisdiction of the North Coast Regional Water Quality Control District. The proposed project is a restoration project within a Natural Preserve and would not involve nor affect any wastewater facilities. The project would be in compliance with all applicable water quality standards and State Parks would obtain a water quality permit from the NCRWQCD if deemed necessary. No wastewater would be produced by this project. The project would have no impact.
- b) As noted above, water for the park is supplied from CSP owned and/or controlled private water supplies. No new facilities are proposed, and there are no utilities available at the project site. The proposed project would not result in the expansion of the existing internal plumbing or wastewater lines and would have no impact on public wastewater treatment facilities. Portable toilets would be provided at the job site and maintained in compliance with North Coast Regional Water Quality Control District requirements. Therefore, the project would have no impact.
- c) The proposed project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities. Removal of three culverts would restore the stream bed, bank, and channel to a natural condition and improve natural stream flow and drainage. The removal of culverts and debris from the channels can be accomplished with conventional excavation, primarily a track-mounted excavator. To minimize the potential for impacts to the streams, paired sandbag cofferdams would be used for dewatering, provide access to the work area, and minimize the introduction of fine sediment. The project would have no impact.
- d) As indicated above, no new facilities would be constructed for the proposed project. The project site is located entirely within the Preserve, where no utilities or facilities exist. Implementation of the project would not require a source of water. Potable water is available for the crew if needed at the campgrounds and developed areas of MacKerricher State Park from CSP-owned and/or controlled private water supplies. Current supplies are adequate for existing demands, as well as the minimal additional demands associated with the proposed construction, and projected future use. Once completed, the project would not require additional water resources. The project would have a less than significant impact.
- e) There are no utilities available at the project site. Portable toilets would be temporarily provided at the job site during project implementation and maintained as required. Once completed, the proposed project would have no impact on the Park's wastewater needs. The Project would have no impact.
- f) The proposed project includes the removal of abandoned asphalt roadway and road base as well as three 5-foot diameter culverts. CSP would strive to recycle as much of the materials as possible. The asphalt and road base would be processed for reuse by the contractor or delivered to the old quarry on State Park property at Big River for future use. Concrete blocks would be crushed and reused or delivered to Akeff Construction or Baxman Gravel in Fort Bragg for recycling. Metal culverts would be recycled if possible or delivered to a disposal facility. Any timber associated with the culvert removal would be retained by CSP and reused for future park projects. Remaining waste material generated during the removal of the remnant haul road, if any, would be hauled to the appropriate transfer station for disposal. Mendocino County has no remaining operational landfills. Solid waste generated in Mendocino County is transported to the Potrero Hills Landfill located in Solano County (County of Mendocino 2009). The proposed project would not increase the park's solid waste disposal needs in the long-term and short-term impacts would be minimal. The Project would have a less than significant impact.

- g) Solid waste generated from this project would include remnant asphalt pieces, road base and fill material, and up to three metal culverts. Efforts would be made to recycle all reusable materials in cooperation with local agencies and businesses such as the project contractor, Caltrans, Akeff Construction, and Baxman Gravel. All trash produced by Park staff, contractors and equipment operators would be removed from the site daily and disposed of properly at State Park facilities at MacKerricher or Russian Gulch maintenance yards. The project would comply with federal, state and local statutes and regulations related to solid waste. The project would have no impact.

CHAPTER 4

MANDATORY FINDINGS OF SIGNIFICANCE

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have the potential to eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means the incremental effects of a project are considerable when viewed in connection with the effects of past projects, other current projects, and probably future projects?)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have environmental effects that will cause substantial adverse effects on humans, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

DISCUSSION

- a) The California State Parks has evaluated the proposed project and its impacts on the environment, fish and wildlife, plants, animals and plant communities, and rare or endangered plants and animals. While the project has the potential to degrade the environment in the short-term, the purpose and goal of the project is restore a sensitive natural ecosystem. Most project activities have been designed to avoid potentially significant impacts to the physical or biotic environment. Standard and Specific Project Requirements have been developed to further avoid or ensure that potential impacts remain less than significant. In addition, for potentially significant impacts for which avoidance is infeasible in order to accomplish project objectives, mitigation measures have been incorporated into the project design. Full implementation of these measures would eliminate or reduce impacts to a less-than significant level. The overall goals of this project, as well as the individual site-specific goals and objectives, have been designed and would be implemented to result in a net benefit to the environment.
- b) California State Parks has evaluated the proposed project for its potential impacts on historical, cultural, and archaeological impacts. The haul road removal area received a full surface assessment for cultural sensitivities. Because of the extent of European beachgrass associated with this project, a full assessment of all European beachgrass treatment areas was not accomplished. However, as a result of the evaluations of project sites as performed, several Standard and Specific Project Requirements have been incorporated into the project design, including avoidance of sensitive

surface features, onsite archaeological monitoring during soil-disturbing project activities, and training for workers and stoppage-of-work requirements for any incidents of discovery of potentially significant archaeological or cultural resources; these measures are to be applied in project activity areas where soil disturbance activities are proposed. Implementation and fulfillment of these project requirements would render project impacts on cultural resources less than significant.

- c) No other projects are planned for any of the proposed sites for this project within the foreseeable future. All sites would be regularly re-visited for up to 5 years following project implementation for the purposes of monitoring and maintenance. These activities themselves constitute the effective mitigations for any negative impacts that might accrue from this project. The cumulative impacts of the collective components of this project are designed to be to the benefit of the ecological condition of the Natural Preserve and its unique dune and wetland systems. Any negative impacts are expected to be less than significant, short-lived, and isolated during and immediately following project implementation and State Parks would respond to these impacts as they are detected, through regular monitoring and maintenance of restoration sites.
- d) Most project activities would have no potentially significant effects on humans. However, environmental impacts on air quality (e.g., heavy equipment emissions), ambient noise levels (e.g., heavy equipment operation), could have substantially adverse effects on humans. While this project could have substantially adverse, direct or indirect effects on humans, implementation of this project according to designed safety standards, engineering specifications, park closure and warning notices and other prescribed safety precautions, project monitoring, and measures outlined in Standard and Specific Project Requirements would ensure potential impacts from emissions remain at a less than-significant level.

CHAPTER 5 SUMMARY OF MITIGATION MEASURES

The following mitigation measures would be implemented by CSP as part of the **DUNE REHABILITATION PROJECT**.

AESTHETICS

- No mitigation measures required

AGRICULTURAL RESOURCES

- No mitigation measures required

AIR QUALITY

- No mitigation measures required

BIOLOGICAL RESOURCES

All special status plant species

- All areas within 50 ft (15 m) of the road will be searched for weeds, specifically iceplant, and will be removed for a 5 year period.

***Abronia umbellata* ssp. *breviflora* – Pink Sand-Verbena**

- A mitigation plan for direct seeding is proposed in areas where appropriate habitat is identified through long-term monitoring. Plants near the haul road that can be avoided will be flagged. Execution of the mitigation plan and avoidance measure is expected to reduce project-related impacts to a less-than-significant level with a mitigation ratio of a minimum of 3:1.

***Chorizanthe howellii* – Howell's spineflower**

- A mitigation plan for long-term monitoring with direct seeding into suitable habitat, habitat improvement by removing asphalt, iceplant, and European beachgrass is expected to reduce project-related impacts to a less-than-significant level with a mitigation ratio of a minimum of 8:1. Because the project occurs within a State Natural Preserve, the largest feasible mitigation ratio was used.

***Horkelia marinensis* – Point Reyes Horkelia**

- To mitigate for potential impacts to horkelia, the implementation of surveying and removing weeds in the road buffer, with special focus on the horkelia patch, will reduce the potential impacts to a less-than-significant level with a mitigation ratio of 1:1.

***Erysimum menziesii* ssp. *menziesii* – Menzies' Wallflower**

- A mitigation plan for long-term monitoring with direct seeding into suitable habitat areas, and habitat improvement by removing iceplant and European beachgrass, is expected to reduce project-related impacts to a less-than-significant level with a mitigation ratio of a minimum of 8:1. Because the project occurs within a State Natural Preserve, the largest feasible mitigation ratio was used.

***Oenothera wolfii* – Wolf's evening-primrose**

- One small patch of evening-primrose at the northern bend in the haul road is within the 50 ft (15 m) potential impact buffer. It will be flagged and avoided. Some plants may be potentially impacted by the project; therefore direct seeding into suitable habitat at a 2:1 ratio will be implemented as mitigation, increasing the number of plants and reducing the impacts to a less-than-significant level.

CULTURAL RESOURCES

- No mitigation measures required

GEOLOGY AND SOILS

- No mitigation measures required

GREENHOUSE GAS AND EMISSIONS

- No mitigation measures required

HAZARDS AND HAZARDOUS MATERIALS

- No mitigation measures required

HYDROLOGY AND WATER QUALITY

- No mitigation measures required

LAND USE AND PLANNING

- No mitigation measures required

MINERAL RESOURCES

- No mitigation measures required

NOISE

- No mitigation measures required

POPULATION AND HOUSING

- No mitigation measures required

PUBLIC SERVICES

- No mitigation measures required

RECREATION

- No mitigation measures required

TRANSPORTATION/TRAFFIC

- No mitigation measures required

UTILITIES AND SERVICE SYSTEMS

- No mitigation measures required

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CHAPTER 7

Report Preparation

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MAPS, TABLES, AND CHARTS

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