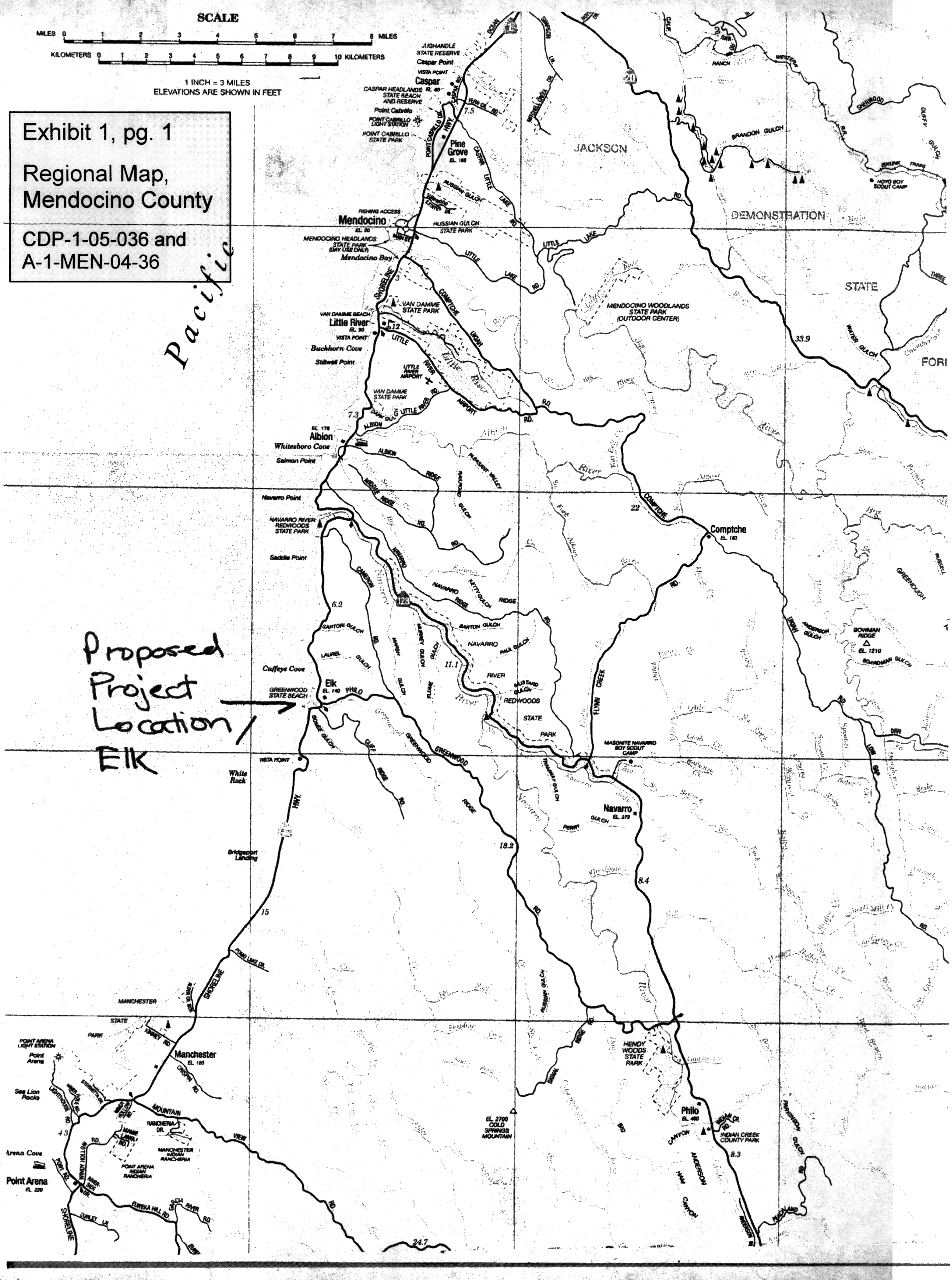

SCALE
MILES 0 1 2 3 4 5 6 7 8 MILES
KILOMETERS 0 1 2 3 4 5 6 7 8 9 10 KILOMETERS
1 INCH = 3 MILES
ELEVATIONS ARE SHOWN IN FEET
Exhibit 1, pg. 1
Regional Map, Mendocino County
CDP-1-05-036 and A-1-MEN-04-36
Proposed Project Location/ Elk
Pacific
Caspar
Pine Grove
Mendocino
Little River
Albion
Comptche
Elk
Navarro
Manchester
Point Arena
Philo
JACKSON
DEMONSTRATION
STATE
MENDOCINO WOODLANDS STATE PARK (OUTDOOR CENTER)
NAVARRO RIVER REDWOODS STATE PARK
GREENWOOD STATE BEACH
HENDY WOODS STATE PARK
COLD SPRINGS MOUNTAIN
INDIAN CREEK COUNTY PARK
MANCHESTER INDIAN RANCHERIA
POINT ARENA INDIAN RANCHERIA

Exhibit 1, pg. 2

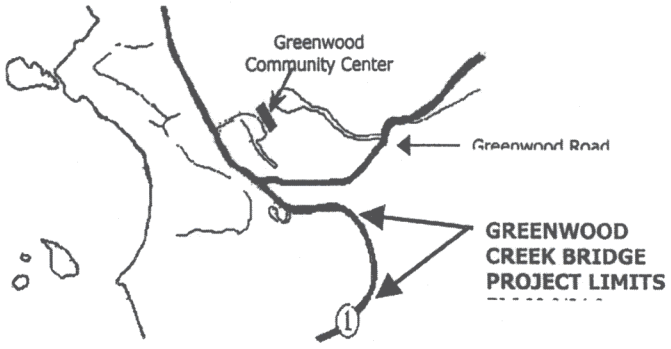
Aerial Photo of Greenwood Creek and Town of Elk

Application No. 1-05-36 and Appeal No. A-1-MEN-04-36

9.1 Public Notice

PUBLIC NOTICE

Greenwood Creek Bridge Replacement Project In Mendocino County



THE PROJECT: The California Department of Transportation (CALTRANS), and the Federal Highway Administration (FHWA), are conducting environmental studies and preparing the preliminary design to replace the Greenwood Creek Bridge. The bridge rails and shoulder width will be upgraded to enhance safety for bicycle traffic. In addition, retaining walls will be constructed along the approaches to minimize construction impacts.

PUBLIC WORKSHOP: A public "drop-in" style workshop will allow the public to discuss the project with Caltrans and FHWA staff and to provide comments on the proposed project. Maps, plans, and a tentative construction schedule will also be available.

WHEN AND WHERE
June 6, 2002, 4:00 PM - 7:00 PM
Greenwood Creek Community Center, 6155 South Highway One, in the town of Elk.

ADDITIONAL INFORMATION:
Caltrans and FHWA have studied the effects that the proposed project may have on the environment. The report that explains the project and our studies is called an Environmental Assessment/Initial Study/ (EA/IS). Our studies show that the project will not significantly affect the quality of the environment within the project limits. Mitigation measures are proposed for minimal impacts. This notice is to inform you of the preparation of the EA/IS and its availability for your review from May 20, 2002 until June 20, 2002, at the following locations during regular business hours:

Elk Store - 6101 South Hwy 1, Elk, CA 95432
Elk Post Office – 5995 South Hwy 1, Elk, CA 95432
Caltrans District Office - 1656 Union Street, Eureka CA 95501 (Mon-Fri - 8:00 am- 4:00 pm)

The Draft EA/IS is also available for review and comment on the internet at:
http://www.dot.ca.gov/dist3/departments/environmental/greenwd/index.html

COMMENTS: Comments will be received at the meeting, or if you are unable to attend, written comments may be submitted by June 20, 2002 to:
Cher Daniels, Chief
Office of Environmental Management S-1
2800 Gateway Oaks Drive, Sacramento CA. 95833
Attention: Lupe Jimenez

For more information about this study, contact Alan Escarda, Project Manager, at CALTRANS – (707) 441-2097. **The deadline for all comments is June 20, 2002.**

SPECIAL ACCOMODATIONS:
Individuals who require documents in alternative formats are requested to contact the District Public Affairs Office at (707) 445-6444. TDD users may contact the California Relay Service TDD line at 1-800-735-2929, or Voice Line at 1-800-735-2922, or CALTRANS TDD phone number at (707) 445-6463.

NEED AND PURPOSE

The purpose of this project is to address a structurally deficient bridge due to potential scour (erosion) conditions. These conditions are threatening the bridge substructure. In addition, the existing roadway alignment does not meet current design standards. The proposed project will also increase shoulder width from one foot to eight feet, increase stopping sight distance and upgrade bridge rail protection to provide enhanced safety for pedestrians and bicycle traffic. As a result of this project, the traveling public will enjoy a safer and wider bridge.

PROJECT DESCRIPTION

Greenwood Creek Bridge is located on Route 1. Route 1 is the lifeline of the Mendocino coast and is part of the Pacific Coast Bike Route. Caltrans has identified Greenwood Creek Bridge as "Scour Critical." Bridge scour can occur when the creek floods and erodes the bridge footings and piers. Consequently, Caltrans has made this project a priority.

ALTERNATIVES

Three alternatives were considered:

1. No Build.

2. Widen and Rehabilitate the existing bridge. ($6 to $8 million)

The existing bridge would be widened 14 feet (40 feet wide between bridge rails with two-12 feet lanes, and two-8 feet shoulders). Bridge Rails would be upgraded to current standards by using type 80 see-through concrete rail with hand railing for bicycle traffic. The centerline of the bridge would be shifted approximately seven feet east. Route 1 would be realigned to the east to connect the approaches of the widened bridge. The realignment would extend approximately 600 feet north and south of the bridge. At least three retaining walls would be built along the bridge approaches to minimize construction impacts due to the roadway realignment. Extensive abutment work would be required to repair existing shear cracks and the entire bridge deck would need to be replaced. The existing footings and piers would be strengthened and seismically retrofitted. Four additional piers would be constructed to accommodate the bridge widening.

3. Replace existing bridge (preferred). ($5 million)

The new bridge will be 40 feet wide between bridge rails with two-12 feet lanes, and two-8 feet shoulders. Bridge Rails will be upgraded to current standards by using type 80 see-through concrete rail with hand railing for bicycle traffic. The centerline of the new bridge will be shifted approximately 40 feet east of the existing bridge. Route 1 will be realigned to the east to connect the approaches of the new bridge. The realignment will extend approximately 600 feet north and south of the bridge. Up to three retaining walls will be built along the bridge approaches to minimize construction impacts due to the roadway realignment.

The Project Development Team recommends Alternative Three as the preferred alternative for further detail study in the Draft Environmental Document. While Alternative three has been selected as the preferred alternative by the project development team, final selection of the preferred alternative will not be made until after the public review period.

STATUS

Caltrans and FHWA are currently conducting environmental studies as required by the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The Project Development Team will be gathering public comments and developing the preliminary design and environmental studies to achieve Project Approval and the Environmental Document (Environmental Assessment/Initial Study). Final design, right-of-way acquisition and construction will occur pending project approval and completion of the final Environmental Document.

FUNDING AND SCHEDULE

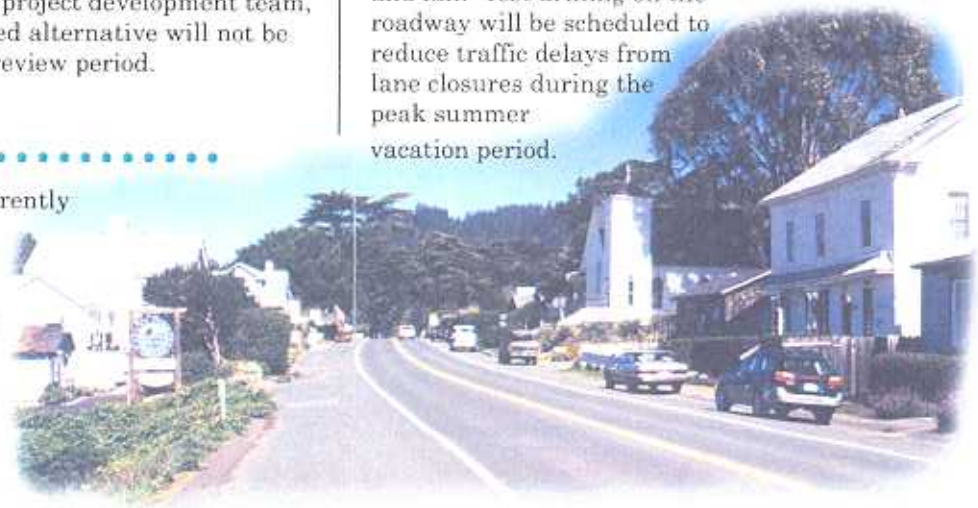
This project is funded for $5,600,000 in the 2002 State Highway Operation Protection Program (SHOPP) Funds.

* Project Approval and Environmental Documents	Summer 2002
* Complete final design	Winter 2003
* Advertise for Bid	Spring 2004
* Contractor Selected / Begin Construction	Summer 2004
* Construction Complete	Winter 2006

CONSTRUCTION TRAFFIC IMPACTS

Traffic will remain on the existing bridge until the work is completed. At least one lane will be open at all times. Delays up to fifteen minutes will be experienced during the construction. Adequate shoulder width will be maintained for bicycle traffic. Provisions to allow emergency vehicles uninterrupted access through the construction area will be in place.

Test drilling under the bridge and along the roadway required for bridge work will take place this summer and fall. Test drilling on the roadway will be scheduled to reduce traffic delays from lane closures during the peak summer vacation period.



STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DISTRICT 3, SACRAMENTO OFFICE, MS 15
2389 GATEWAY OAKS DRIVE, SUITE 100
SACRAMENTO, CA 95833
PHONE (916) 274-0586
FAX (916) 274-0602
TTY (530) 741-4509

Exhibit 1A, pg. 4 of 6
Public Notice
CDP-1-05-036 and A-1-MEN-04-36

Flex your power!
Be energy efficient!

January 14, 2003

01-MEN-01
PM 33.0/34.0
KP 53.1/54.7
01-31010

Good morning:

The review period for the Subsequent Initial Study for the Greenwood Creek Bridge Replacement Project has ended. No comments were received. Caltrans has filed a Notice of Determination and a Negative Declaration with the State Clearinghouse (attached).

Please contact me at (916) 274-0586 or ken_lastufka@dot.ca.gov if you have any questions.

RECEIVED
JAN 16 2004
CALIFORNIA
COASTAL COMMISSION

Sincerely,

KEN LASTUFKA, Environmental Coordinator
Environmental Branch S-1

Attachment

Notice of Determination

Form C

To: ☑ Office of Planning and Research
PO Box 3044, 1400 Tenth Street, Room 222
Sacramento, CA 95812-3044

☑ County Clerk
County of Mendocino
501 Low Gap Road, Room 1040
Ukiah, CA 95482

From: (Public Agency) Caltrans
2389 Gateway Oaks, Suite 100
Sacramento, CA 95833
(Address)

Subject:
Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

Greenwood Creek Bridge Replacement Project
Project Title

2002052090	Cher Daniels	916-274-0568
State Clearinghouse Number (If submitted to Clearinghouse)	Lead Agency Contact Person	Area Code/Telephone/Extension

Along State Route 1 north of Elk, Mendocino County
Project Location (include county)

Project Description:

The California Department of Transportation (Caltrans) and the Federal Highway Administration proposes to replace the existing Greenwood Creek Bridge with a new, two-lane bridge with 3.6 meters (12 foot) lanes, 2.4 meter (8 foot) shoulders and an overall length of 169 meters (554 feet). Route 1 will be realigned to connect the new bridge at both the north and south approaches.

This is to advise that the _____ ☑ Lead Agency ☐ Responsible Agency has approved the above described project on _____ (Date) and has made the following determinations regarding the above described project:

1. The project [☐will ☑will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☑ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☑were ☐were not] made a condition of the approval of the project.
4. A statement of Overriding Considerations [☐was ☑was not] adopted for this project.
5. Findings [☑were ☐were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval is available to the General Public at:

Cher Daniels — *Signature* (Public Agency)
11/12/04 — *Date*
Sen Env. Planner — *Title*

Date received for filing at OPR:

Revised May 1999

State of California
Department of Transportation

SCH Number: 2002052090
01-MEN-101-KP 53.1/54.7
(PM 33.0/34.0)

Subsequent Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) proposes to replace the existing Greenwood Creek Bridge with a new, two–lane bridge with 3.6 meters (12 foot) lanes, 2.4 meter (8 foot) shoulders and an overall length of 169 meters (554 feet). Route 1 will be realigned to connect the new bridge at both the north and south approaches. The existing Greenwood Creek Bridge is located on Route 1 in Mendocino County, approximately half a mile south of the town of Elk.

In December 2002, the California Department of Transportation (Caltrans) approved a Negative Declaration for the proposed Greenwood Creek Bridge Replacement Project. Subsequent to approval of the Negative Declaration, in August 2003, Caltrans completed a revision of the 1986 historic bridge inventory. Because of the revision, the Greenwood Creek Bridge was determined to be eligible for listing in the National Register of Historic Places, which necessitates a Section 106 evaluation under the National Historic Preservation Act. The original environmental document and Historic Property Survey Report used the data from the 1986 historic bridge inventory and concluded that the bridge was not eligible.

As a result of this late discovery, Caltrans received Section 106 concurrence from the State Office of Historic Preservation in October 2003. The purpose of this Subsequent Negative Declaration is to determine the potential significant impacts associated with the bridge eligibility determination under Section 106 and to incorporate appropriate mitigation measures into the project design as necessary to avoid, minimize or mitigate the significant or potentially significant effect of the project. The original project scope, schedule, and cost have not changed as a result of this late discovery.

Determination

Caltrans has prepared a Subsequent Initial Study, and determines from this study that the proposed project would not have a significant effect on the environment for the following reasons:

- Potential impacts to cultural resources will be mitigated though compliance with the mitigation measures listed in the attached Subsequent Initial Study.

JOHN D. WEBB
Office Chief
North Region Environmental Services
California Department of Transportation

1-12-04
Date

Summary of Main Habitat Impacts of Alternatives 2 vs. 3, Greenwood Creek Bridge Replacement Project

(Compiled by Vanessa Metz, Calif. Coastal Commission, from CDP Application data).

Alternative 2 = Replace and Widen Existing Bridge

Alternative 3 = Eastern Alignment (Proposed Project)

PERMANENT Habitat Impacts	Alt. 2 (Replace)	Alt. 3 (Proposed)
All Wetland Types	0.33 acres	0.61 acre
Freshwater Seep Wetlands	0.001 acre	0.01 acre
Non-Seep Wetlands	0.33 acre	0.60 acre
Creeks	0.001 acre	0.01 acre
Individual Trees Removed	893 trees	1107 trees
Fir trees (vole habitat)	48 trees	82 trees
Vole nesting trees	14 trees	15 trees
All Plant Communities	0.81 acres	1.33 acres
Rare Plant Communities	0.42 acres	0.77 acres
Coastal Coniferous Forest	0.33 acres	0.47 acres

"TEMPORARY" Habitat Impacts	Alt 2	Alt 3
All Wetland Types	2.50 acres	3.14 acres
Freshwater Seep Wetlands	0.01 acres	0.03 acres
Non-Seep Wetlands	2.49 acres	3.11 acres
Creeks	0.22 acres	0.21 acres
All Plant Communities	4.00 acres	6.28 acres
Rare Plant Communities	2.54 acres	3.85 acres
Coastal Coniferous Forest	0.93 acres	2.02 acres

Culvert Extensions	Alt 2	Alt 3
Total Culvert Extensions	15.5 linear feet	88.8 linear feet
Bonee Gulch Creek Culvert	none	48.0 linear feet
Tributary 1 Culvert	7.0 linear feet	15.0 linear feet
Tributary 2 Culvert	none	20.0 linear feet
Tributary 3 Culvert	8.5 linear feet	5.8 linear feet

Fill in Tributaries	Alt 2	Alt 3
Total Fill in Tributaries	none	0.0005 acre (21.5 ft^2)
Fill in Tributary 1	none	0.0003 acre (12.9 ft^2)
Fill in Tributary 2	none	0.0002 acre (8.6 ft^2)
Fill in Tributary 3	none	none

Cut and Fill	Alt 2 (Replace)	Alt 3 (Proposed)
Total Cut and Fill Area	0.03 acres	1.7 acres
Cut Area	0.01 acres	1.2 acres
Fill Area	0.02 acres	0.5 acres
Total Cut and Fill Volume	n/a	16,098 cu yd
Cut Volume	n/a	4,718 cu yd
Fill Volume	n/a	11,380 cu yd

TOTAL, PERMANENT, AND TEMPORARY IMPACTS BY HABITAT

All Wetland Types Impacts	Alt 2	Alt 3
Total Wetland Impacts	2.83 acres	3.75 acres
Permanent Wetland Impacts	0.33 acres	0.61 acres
Temporary Wetland Impacts	2.50 acres	3.14 acres

Seep Wetland Impacts	Alt 2	Alt 3
Total Seep Wetland Impacts	0.009 acres	0.04 acres
Permanent to Seep Wetland	0.001 acres	0.01 acres
Temporary to Seep Wetland	0.009 acres	0.03 acres

Non-Seep Wetland Impacts	Alt 2	Alt 3
Total Non-Seep Wetl. Impacts	2.82 acres	3.70 acres
Permanent Non-Seep Wetl.	0.33 acre	0.60 acre
Temporary Non-Seep Wetl.	2.49 acres	3.11 acres

Creeks Impacts	Alt 2	Alt 3
Total Creeks Impacts	0.22 acre	0.22 acre
Permanent Creeks Impacts	0.001 acre	0.01 acre
Temporary Creeks Impacts	0.22 acre	0.21 acre

All Plant Communities Impacts	Alt 2	Alt 3
Total All Plant Community Impacts	4.81 acres	7.61 acres
Permanent All Plant Comm.	0.81 acre	1.33 acres
Temporary All Plant Comm.	4.00 acres	6.28 acres

Rare Plant Communities Impacts	Alt 2	Alt 3
Total Rare Plant Community Impacts	2.96 acres	4.62 acres
Permanent Rare Plant Comm.	0.42 acres	0.77 acres
Temporary Rare Plant Comm.	2.54 acres	3.85 acres

Coniferous Forest Impacts	Alt 2	Alt 3
Total Coniferous Forest Impacts	1.26 acres	2.49 acres
Permanent Coniferous	0.33 acres	0.47 acres
Temporary Coniferous	0.93 acres	2.02 acres

CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
710 E STREET • SUITE 200
EUREKA, CA 95501-1865
VOICE (707) 445-7833
FACSIMILE (707) 445-7877

MAILING ADDRESS:
P. O. BOX 4908
EUREKA, CA 95502-4908

M E M O R A N D U M

FROM: Vanessa Metz, Ph.D.
Biologist/Water Quality Analyst

TO: Melanie Faust

SUBJECT: Evaluation of Wetland Delineation Data Sheets and Maps for the Greenwood Creek Bridge Replacement Project

DATE: June 14, 2005

Documents Reviewed:

Appendix A: Delineation Data Sheets for Seep; and **Appendix B: Delineation Data Sheets for Coastal Commission Riparian Woodland Wetlands.** Routine Wetland Delineation Data Sheets for the Greenwood Creek Bridge Replacement Project. Caltrans (submitted by Jeremy Ketchum, Chief Environmental Branch). Received March 28, 2005.

Habitat Map, Greenwood Creek Bridge Replacement. Large map from the "California Coastal Commission Wetlands Delineation Report for the Greenwood Creek Bridge Replacement Project." Caltrans (submitted by Jeremy Ketchum, Chief Environmental Branch). Undated; received March 28, 2005.

Figure 3, Wetland Delineation, Greenwood Creek Bridge Replacement. Large map from the "Jurisdictional Delineation Report for the Greenwood Creek Bridge Replacement Project." Caltrans (submitted by Jeremy Ketchum, Chief Environmental Branch). Undated; received March 28, 2005.

California Coastal Commission Wetlands Delineation Report for the Greenwood Creek Bridge Replacement Project. Caltrans (prepared by Don Schmoldt, Associate Environmental Planner). January 5, 2005.

Jurisdictional Delineation Report for the Greenwood Creek Bridge Replacement Project. Caltrans (prepared by Jason Meigs, Associate Environmental Planner). December 1, 2004.

Purpose of this Memo

You have asked me to evaluate the data sheets and maps for the wetland delineation studies conducted by Caltrans for the Greenwood Creek bridge replacement project, to determine whether the wetland delineation analyses were conducted correctly. Two wetland delineation reports were submitted for this project, the *Jurisdictional Delineation Report* (December 2004), and the *California Coastal Commission Wetlands Delineation Report* (January 2005). However, in the copies of these two reports submitted to the Coastal Commission in January 2005, no data sheets were included in the *California*

Coastal Commission Wetlands Delineation Report, and the two data sheets included in the *Jurisdictional Delineation Report* were both incomplete (i.e., lacked soils data). The *California Coastal Commission Wetlands Delineation Report* also lacked a map showing the wetland boundaries and sampling points, and only a small map (with insufficient detail) was included with the *Jurisdictional Delineation Report.*

Subsequently, in response to Coastal Commission staff's requests, on March 28, 2005, the completed data sheets and large maps for both reports were submitted to the Coastal Commission. In this memo, I evaluate these data sheets and maps (see *Delineation Data Sheets for Seep*; *Delineation Data Sheets for Coastal Commission Riparian Woodland Wetlands*; *Habitat Map, Greenwood Creek Bridge Replacement*; and *Figure 3, Wetland Delineation, Greenwood Creek Bridge Replacement*). Additional analysis of the adequacy of the two wetland delineation reports may be found in my March 25, 2005 memo on "Information Needed from Caltrans to Evaluate Environmental Impacts of Greenwood Creek Bridge Replacement Project."

Evaluation of Wetland Delineation Data Sheets and Maps

- **Wetland Delineation Methodology**

Data for a Coastal Commission wetland delineation should be collected using the same methodology as for a U.S. Army Corps of Engineers (ACOE) wetland delineation, on the same data sheets; the only difference is in the interpretation of the data. An ACOE wetland determination requires a positive indicator for all three wetland parameters (hydrology, soils, and vegetation). A wetland determination for the Coastal Commission should take into account the data on all three wetland parameters, but requires a positive indicator for just one of the three parameters.

For several of the sampling plots, Caltrans did not follow the Coastal Commission's requirements in making the wetland determination, and thus these determinations were incorrect. For example, of the 13 sampling plots used to delineate the entire project site (which covers over 10 acres), the data sheets for Plot 1, Plot 2, and Plot 4 (Appendix B: Delineation Data Sheets for Coastal Commission Riparian Woodland Wetlands), recorded a positive indicator for hydrophytic vegetation, but nonetheless determined that the sampling plot is not within a wetland. The remarks section for these three plots stated:

> "The sample area is dominated by hydrophytic vegetation, but lacked hydrology and hydric soil characteristics. Hence, it may qualify as a "wetland" based on Coastal Commission one parameter requirement, but is not a wetland based on Army Corps three parameter requirements."

Thus, it was apparent that the investigator was aware of the Coastal Commission's requirements for wetlands delineations, yet chose to ignore these requirements in making his determinations. My previous memo (March 25, 2005) details additional deficiencies in the methodology used for the wetland delineation studies (e.g., too few sampling points), and in the delineation reports (e.g., lack of appropriately scaled maps).

Another problem that the data sheets and maps revealed is that only one sampling plot (Plot 7) was used to delineate the entire riparian wetland area of Bonee Gulch creek (a perennial stream), but the data collected at this plot is of dubious value. The investigator stated that he could not access this plot, and thus made his vegetation determination from "looking down-canyon"; no hydrology or soils data were recorded at this plot. As the project proposes to fill approximately 65 linear feet of this creek's riparian wetlands, it is important that an accurate delineation of this riparian area be performed. Complete data should thus be collected on site at sampling plots that are accessible in this riparian area.

- **Map of Wetlands Inconsistent with Data Sheets**

Many of the wetland determinations reported on the data sheets were inconsistent with the wetland delineation borders shown on the Habitat Map submitted with the data sheets. For example, the Habitat Map shows that the sampling plots within mapped riparian wetland areas are Plots 3, 4, 5, 7, and 11; however, the data sheets indicate that none of these five plots were determined to be within a wetland.

The data sheet for Plot 7 did not make a wetland determination, but recorded a "?" instead, stating that the investigator could not access this plot. The data sheets for the remaining plots mapped as wetlands (Plots 3, 4, 5, and 11) report the investigator's determination that each of these plots is not within a wetland. Furthermore, the data sheets for Plots 3, 5, and 11 show that all three wetland parameters (vegetation, hydrology, and soils) were determined to be negative for these plots, and yet these three plots were all shown on the Habitat Map as solidly within the riparian wetland.

It is unclear whether the investigator meant to indicate on the Habitat Map that Plots 1 and 2 are within the riparian wetland or not. The map shows these two plots located close to the border of the mapped riparian wetland, although the plot markers appear to be mostly within the riparian wetland. However, the data sheets for these two plots recorded the investigator's determination that these plots are not within a wetland (notwithstanding his determination that each of these two plots was positive for hydrophytic vegetation). The text of the *California Coastal Commission Wetlands Delineation Report* does not clarify the wetland determination status for any of the sampling plots.

The numerous discrepancies between the data sheets and the maps suggest that in mapping the wetland boundaries, the investigator disregarded the data he had collected. The two maps submitted were not at an appropriate scale, and lacked sufficient detail to identify sampling plots and wetland boundaries in relation to hydrological and landscape features. The text of the wetland delineation reports state that the wetland boundaries were determined by a vegetation change; however, the reports lacked photo documentation of these vegetation changes, and the data do not support the wetland boundaries as mapped.

- **Vegetation Parameter**

On all of the data sheets completed for the 13 sampling points in the two wetland delineation studies, Caltrans staff used an incorrect method to determine whether hydrophytic vegetation is present at the sampling point. The errors made in the

vegetation analysis led to erroneous determinations in the vegetation parameter at three sampling plots, and also led to errors in the wetland determination at these three plots.

The correct method is to use the "50/20 Rule" to select the dominant plant species in each stratum, and then determine whether more than 50% of the dominant species (combined across strata) are hydrophytic. The 1987 ACOE Wetlands Delineation Manual (pg. 13) describes this method:

> "The '50/20 rule' is the recommended method for selecting dominant species from a plant community when quantitative data are available. The rule states that for each stratum in the plant community, dominant species are the most abundant plant species (when ranked in descending order of abundance and cumulatively totaled) that immediately exceed 50% of the total dominance measure for the stratum, plus any additional species that individually comprise 20% or more of the total dominance measure for the stratum. The list of dominant species is then combined across strata."

There were 3 main problems in the vegetation analysis that Caltrans staff performed: 1) dominant species were not selected using the 50/20 rule, but instead all of the species recorded in the sampling plot were used to calculate the % of dominants that are hydrophytic; 2) the dominant species were not selected for each stratum separately; 2) the % cover of each species in a stratum was not converted to relative % cover.

Here is an example that illustrates the importance of determining the relative % cover for each stratum. If only one tree species is present on a sampling plot, and this species covers 10% of the plot, then this species' relative % cover is 100% of the tree stratum; thus this is a dominant species. However, if the actual % cover of this species is not converted to relative % cover for the stratum, then this species (with 10% actual cover) would erroneously be considered non-dominant.

Caltrans' data sheet for Plot 3 provides a good example of the errors in the investigator's wetland determinations. Here is how the calculation should have been performed for sampling Plot 3:

Tree Stratum
Tree A (FACW) = 25% cover = **100**% relative tree cover = **Dominant** (hydrophytic)

Shrub Stratum
No species listed

Herb Stratum
Herb A (NI) = 25% cover = **49**% relative herb cover = **Dominant** (non-hydrophytic)
Herb B (FACW) = 20% cover = **39**% relative herb cover = **Dominant** (hydrophytic)
Herb C (FACU) = 2% cover = 4% relative herb cover = not dominant
Herb D (FACU) = 2% cover = 4% relative herb cover = not dominant
Herb E (FACU) = 2% cover = 4% relative herb cover = not dominant

There are thus 3 dominant species, and 2 of the 3 species are hydrophytic (OBL, FACW, or FAC); thus 2/3 (67%) of the dominant species are hydrophytic. Because more than 50% of the dominant species are hydrophytic, the correct determination for the vegetation parameter should thus have been that this plot is positive for the presence of hydrophytic vegetation. However, the investigator incorrectly determined that 45% of the dominants are hydrophytic, and thus that this plot is negative for hydrophytic vegetation. Furthermore, the investigator also erroneously concluded that this plot is not a wetland. The vegetation parameter was also incorrectly determined at Plot 1 and Plot 7, which were erroneously determined to be hydrophytic.

- **Hydrology Parameter**

For three of the 13 sampling plots, no data was recorded for Field Observations of hydrology indicators (i.e., depth of surface water, depth to free water in pit, and depth to saturated soil). For nine of the 10 remaining sampling sites, the data recorded for the hydrology parameter was evidently erroneous.

Hydrology data should be recorded at each sampling plot; if a measurement is zero, this figure should be recorded rather than leaving the data line blank. For example, on the data sheet for "Plot #2 Upland" (Appendix A: Delineation Data Sheets for Seep), the investigator recorded "**N/A**" for each of the three hydrology Field Observations (i.e., depth of surface water, depth to free water in pit, and depth to saturated soil). The investigator's determination that the hydrology parameter was negative for wetland hydrology was based solely on aerial photos; he did not record any remarks to explain why the Field Observations were not made for this plot. In addition, the data sheets for Plot 7 and Plot 10 were left blank for the three hydrology Field Observations. The investigator did not explain why hydrology data was not recorded for Plot 10, but for Plot 7, the remarks section states "Could not access site."

On the data sheets for nine of the 10 remaining plots (the exception is "Plot #1 Wet" in the seep wetland, which had standing water), the investigator initially recorded a slash across the data line for each of the hydrology Field Observations (i.e., depth of surface water, depth to free water in pit, and depth to saturated soil). The slash was then crossed out, and the following data was recorded for the hydrology Field Observations for each of these nine plots (Plots 1-6, 8-9, and 11, in Appendix B Delineation Data Sheets for Coastal Commission Riparian Woodland Wetlands):

Depth of Surface Water: **> 12"**
Depth to Free Water in Pit: None
Depth of Saturated Soil: > 12"

This data recorded for the depth of surface water at these nine plots was evidently incorrect, as it is unlikely that any of these plots were actually inundated with greater than 12 inches of surface water, as stated on the data sheets. The investigator did not indicate in the Primary Hydrology Indicators section of the data sheets that these plots were inundated, and he concluded that wetland hydrology was not present at any of these nine plots. Because the original slash marks across the data lines were crossed out, and all the hydrology data subsequently recorded for these three indicators is

identical for each of these nine plots (including the same error in surface water depth), this has the earmarks of data added after the fact.

- **Soils Parameter**

In Plot 3, the investigator recorded a soil matrix color with a chroma of 1 in unmottled soils, which is an indicator of hydric soils. The investigator's initial determination was to circle "Yes" on the data sheet for the presence of hydric soils, but then this was crossed out and "No" was circled instead. The explanation given in the remarks section was: "Soils with low chroma due to high organic matter content, not due to hydrological conditions."

However, this may be a case of the interpretation of the data being influenced by what the investigator expected to see at the plot. Because (as explained above), the investigator had erroneously determined that this plot was negative for hydrophytic vegetation, he evidently changed the soils determination to agree with his vegetation determination. A correct analysis of the data would yield a determination that both the vegetation and the soil parameters are positive for wetland characteristics; therefore, the investigator was erroneous in his determination that this plot was not within a wetland.

- **Summary**

My evaluation of the wetland delineation data sheets and maps revealed numerous problems with the wetland delineations for this project. The Caltrans investigators:

1) Did not follow the Coastal Commission's required methodology for wetland determinations;
2) Delineated Bonee Gulch Creek riparian wetland area using only one sampling plot viewed from a distance;
3) Mapped wetland boundaries that are in conflict with their data determinations at sampling plots;
4) Did not prepare maps of adequate scale and detail;
5) Incorrectly analyzed the vegetation data;
6) Recorded no data or erroneous data for hydrology indicators; and
7) Changed the interpretation of soils data for a plot to align with the expected result.

Combined with the problems in study design and report preparation detailed in my previous memo (March 25, 2005), I do not have confidence that the project site's wetlands were accurately delineated. The two wetland delineation studies for this project were poorly designed, the data were poorly analyzed, and the results were poorly reported; these studies are not acceptable. Caltrans should re-do the wetland delineation for the project site, using an experienced investigator. The critique provided in this memo and my previous memo may be helpful to provide guidance to Caltrans on the Coastal Commission's expectations for an acceptable wetlands delineation study and report.

0 21 42 84 Meters

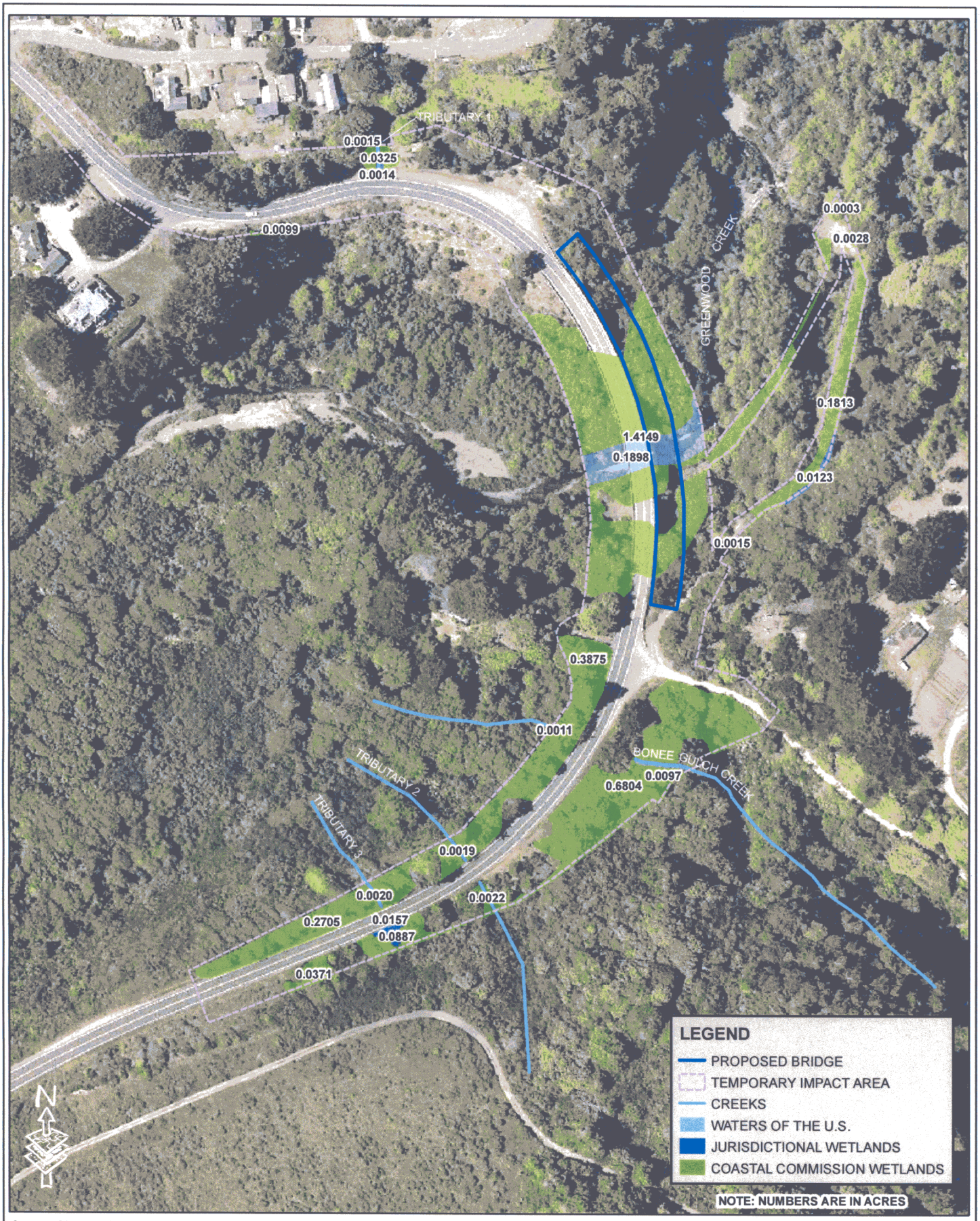
1 centimeter equals 21 meters

0 87.5 175 350 Feet

1 inch equals 174.985639 feet

GREENWOOD CREEK BRIDGE	ALTERNATIVE 3 PERMANENT WETLAND IMPACTS	Figure 12-3a
26815138		

Attachment 3



0 21 42 84 Meters — 1 centimeter equals 21 meters

0 87.5 175 350 Feet — 1 inch equals 175 feet

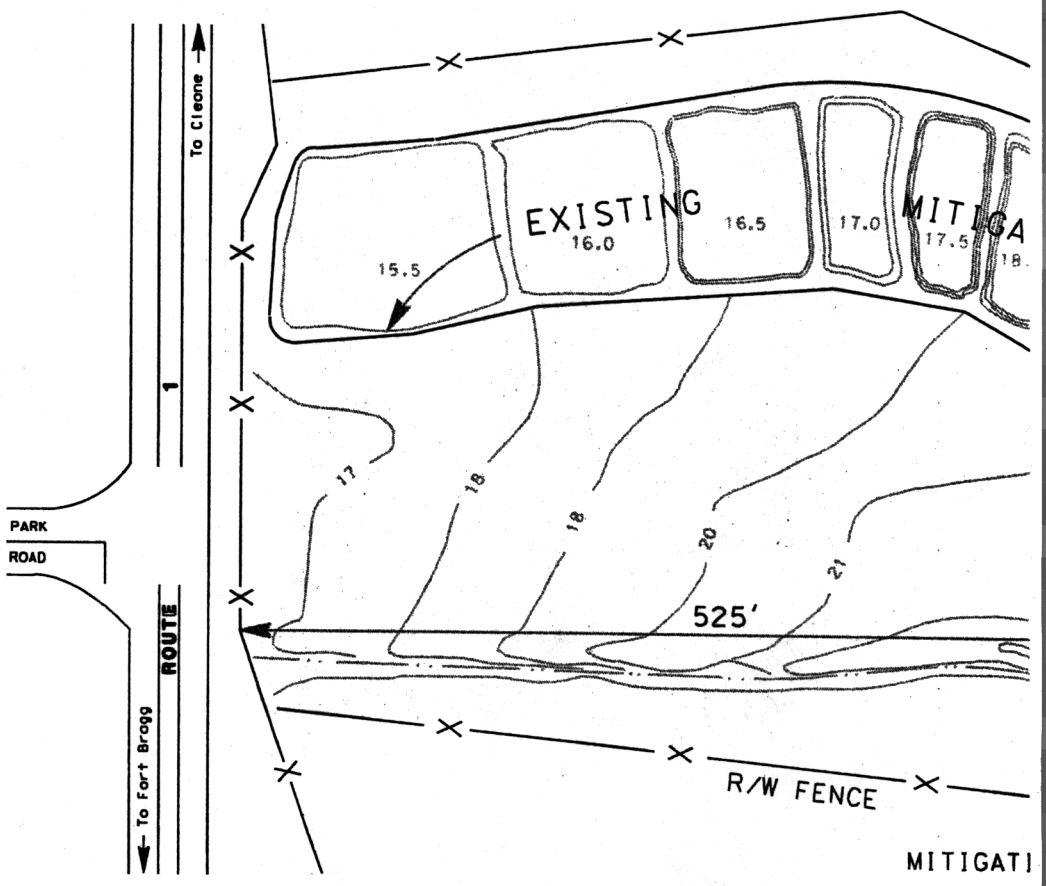
GREENWOOD CREEK BRIDGE	ALTERNATIVE 3 TEMPORARY WETLAND IMPACTS	Figure 12-3b
26815138		

Attachment 4

URS Corporation L:\Projects\Greenwood_Creek_Bridge\MXD\Current Working Documents\Intersection_Calculation_Maps\Wetland_Calculations\PERM\Alternative_2_PERM_Wetlands_Intersections_Map_letter_size.mxd Date: 7/20/2005 1:15:37 PM Name: kvhoppe0

Attachment 5

Attachment 6, part 1 of 2



NOTES:

1. REMOVE SOD IN AREA TO BE EXCAVATED.
2. REMOVE 0.3 m LAYER OF TOPSOIL & STOCKPILE.
3. EXCAVATE TO TOTAL DEPTH OF 0.9 m.
4. PLACE 0.3 m OF STOCKPILED TOPSOIL ON BOTTOM OF EXCAV
5. CONTOUR AND EXISTING CELL ELEVATIONS ARE FOR INFORMAT
   NEW CELL ELEVATIONS ARE SHOWN IN BOLDER PRINT.
6. UNLESS DENOTED OTHERWISE, ALL DIMENSIONS ARE IN IMPERI

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	PROJECT ENGINEER	CALCULATED/ DESIGNED BY	Thomas G. Charley	DATE	REVISED BY	
Caltrans MINOR B BRANCH	ALAN R. RADFORD	CHECKED BY			DATE REVISED	

D:\Mitigate.dgn 09/02/2004 09:01:21 AM

Attachment 6, part 2 of 2

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
1	MEN	1	104.3	1	3

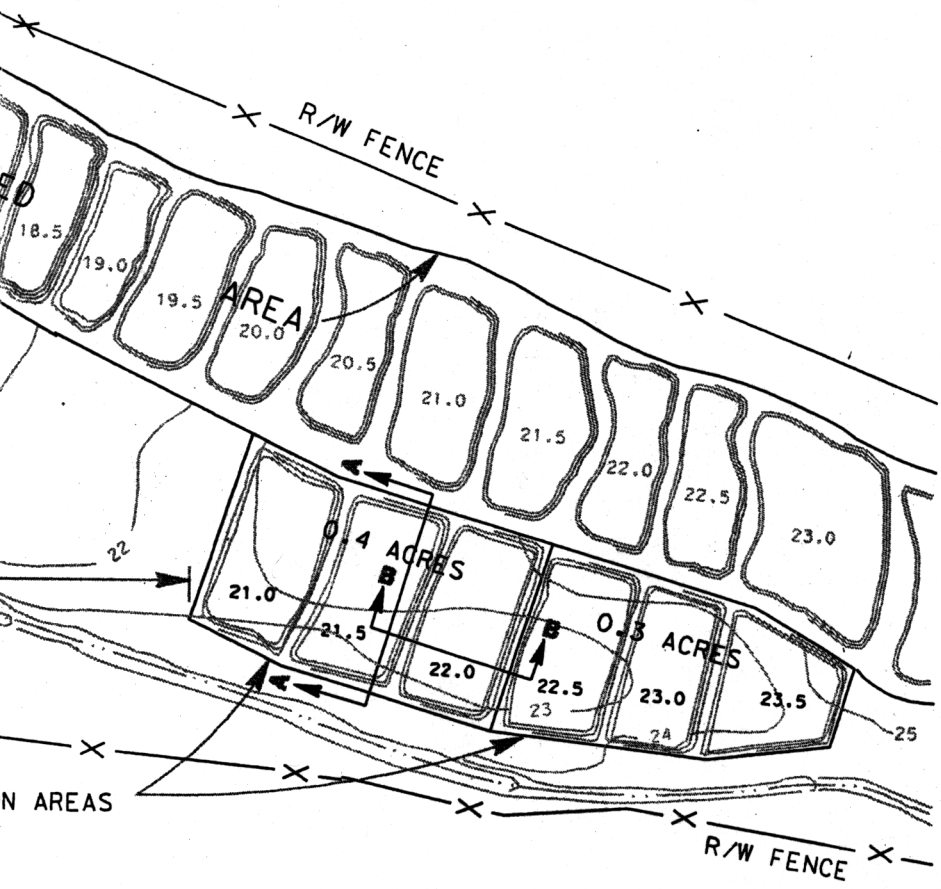
REGISTERED CIVIL ENGINEER

September 2, 2004
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

Caltrans web site access: http://tresc.dot.ca.gov

REGISTERED PROFESSIONAL ENGINEER
ALAN R. RADFORD
No. 38663
Exp. 3/31/05
CIVIL
STATE OF CALIFORNIA



LAN

IMPERIAL, AS REQUESTED BY SUSAN LEROY FOR ACOE

TED AREA.
ON ONLY.

MEN-1-KP 104.3 (PM 64.8)
WETLAND MITIGATION
01-222 291908

SCALE: 1" = 100'

STATE OF CALIFORNIA -- THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *GOVERNOR*

CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
710 E STREET • SUITE 200
EUREKA, CA 95501-1865
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P. O. BOX 4908
EUREKA, CA 95502-4908

M E M O R A N D U M

FROM: Vanessa Metz, Ph.D.
Biologist/Water Quality Analyst

TO: Melanie Faust

SUBJECT: Environmental Impacts of Caltrans' Greenwood Creek Bridge Replacement Project

CDP #: Application No. 1-05-36 and Appeal No. A-1-04-36

DATE: August 31, 2005

Environmental Documents Reviewed

- **Greenwood Creek Bridge Replacement: Coastal Development Permit Application and Report**. Caltrans. August 2005. Including the following attachments regarding environmental issues:

  Appendix E. Erosion Control and Revegetation Plan, Greenwood Creek Bridge Replacement. Caltrans. September 16, 2003.

  Appendix E. Amendments to 9/16/2003 Revegetation Plan. Caltrans Memorandum from Steven Nawrath (Caltrans Landscape Architect) to Lupe Jimenez (Caltrans Environmental Coordinator). October 6, 2004.

  Appendix H. Environmental Assessment/Initial Study, Greenwood Creek Bridge Replacement. Caltrans. December 2002.

  Appendix J. Coastal Development Permit Application to Mendocino County, Greenwood Creek Bridge Replacement Project. Caltrans. March 26, 2003.

  Appendix J. Biological Assessment, State Route 1- Greenwood Creek Bridge Replacement Project. Caltrans. July 2001. (Attachment to Coastal Development Permit Application to Mendocino County. March 26, 2003).

  Appendix J. Natural Environmental Study Report, State Route 1- Greenwood Creek Bridge Replacement Project. Caltrans. January 2002.

  Appendix N. Coastal Commission Wetland Delineation Report, Greenwood Creek Bridge Replacement. Caltrans. August 2005.

- **Documents previously submitted by Caltrans regarding environmental issues:**

  California Coastal Commission Wetlands Delineation Report for the Greenwood Creek Bridge Replacement Project. Caltrans (Don Schmoldt, Associate Environmental Planner). January 5, 2005.

  Jurisdictional Delineation Report for the Greenwood Creek Bridge Replacement Project. Caltrans (Jason Meigs, Associate Environmental Planner). December 1, 2004.

  Wetland Mitigation Plan (1-page diagram). Caltrans. September 2, 2004.

  Supplemental Project Scope Summary Report (Structure Replacement), Greenwood Creek Bridge. Caltrans. August 1999.

Site Visit

On September 13, 2004 I visited the Greenwood Creek bridge site with Melanie Faust (CCC analyst), Peter Johnsen (NOAA Fisheries), Don Schmoldt and Chris Collison (Caltrans Biologists), Lupe Jimenez (Caltrans Environmental Coordinator), Alan Escarda (Caltrans Project Manager), and four Caltrans engineers. We viewed the existing bridge; the location of the proposed bridge footings in the Greenwood Creek riparian corridor; the existing access road; the locations of the three proposed retaining walls; the proposed cut-and-fill areas required for the highway realignment; two of the four tributaries that transect the proposed cut-and-fill areas; and one freshwater seep wetland at the southern end of the project area.

Project Description

You have asked me to evaluate the main environmental impacts of Caltrans' proposed Greenwood Creek Bridge replacement project. Both a CDP application and an appeal are under consideration, as the project is partially within the Commission's retained jurisdiction and partially within the County of Mendocino's jurisdiction. For the purpose of this memo, I will consider the project as a whole.

Caltrans proposes to replace the existing Greenwood Creek Bridge with a wider bridge shifted to the east, and to realign Highway 1 at both the north and south approaches to connect to the new bridge. Habitat areas that would be impacted include Greenwood Creek, four tributaries to Greenwood Creek, and 7.6 acres of vegetation (including 3.7 acres of wetlands and 2.5 acres of Coastal Coniferous Forest). The construction staging areas and most of the access road from the highway to the creek are located in the Greenwood Creek riparian corridor. An approximately 2.5 acre section of Greenwood Creek's riparian slopes would be cleared of vegetation along the length of the new 554-ft long bridge. The access road would be widened as necessary, 177 linear feet of the access road would be moved, and a temporary trestle bridge across Greenwood Creek would provide access to the north side of the creek for construction equipment.

The proposed roadway realignment and widening would require extensive landform alterations (1.2 acres of cut and 0.5 acres of fill), and the construction of three retaining

walls totaling 670 linear feet. The roadway realignment would require culvert extensions in four tributaries to Greenwood Creek, the placement of fill in the waterways and riparian corridors of three of the tributaries, and the removal of vegetation (including wetlands and Coastal Coniferous Forest) in the location of the new roadway.

Relevant Coastal Act and LCP Policies

Both the Mendocino County LCP and the Coastal Act include policies for protection of habitats found on the project site (including wetlands, riparian areas, streams, and sensitive plant or wildlife habitats). Two of the relevant policies are:

Section 3.1-10 of the Mendocino County LCP addresses riparian areas, and states in part (emphasis added):

> "Areas where riparian vegetation exists, such as **riparian corridors**, are **environmentally sensitive habitat areas** and development within such areas shall be limited to only those uses which are dependent on the riparian resources. All such areas shall be protected against any significant disruption of habitat values by **requiring mitigation** for those uses which are permitted. No structure or development, including dredging, filling, vegetation removal and grading, which could degrade the riparian area or diminish its value as a natural resource shall be permitted in the Riparian Corridor except for: …
>
> - pipelines, utility lines and **road crossings, when no less environmentally damaging alternative route is feasible…"**

Section 30233 of the California Coastal Act addresses filling wetlands, and states in part (emphasis added):

> "The diking, filling, or dredging of open coastal waters, **wetlands**, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is **no feasible less environmentally damaging alternative**, and where **feasible mitigation measures have been provided to minimize adverse environmental effects**, and shall be limited to the following…"

The staff report will analyze whether this project is one of the allowable uses under Coastal Act Section 30233. In this memo, I will address whether: 1) there is no feasible less environmentally damaging alternative; and 2) feasible mitigation measures have been provided to minimize adverse environmental effects.

Project Alternatives

In this CDP Application and Report (August 2005), Caltrans evaluated six alternatives for the project, including rebuilding the bridge in place, and two variations each of building the bridge in a parallel alignment to the east or to the west of the existing bridge:

- Alternative 1: No-Build
- Alternative 2: Replace and Widen
- Alternative 3: Eastern Alignment (Caltrans' Proposed Project)
- Alternative 4: Eastern Alignment - Three-Stage
- Alternative 5: Western Alignment - Short Bridge
- Alternative 6: Western Alignment - Long Bridge.

Caltrans concluded in this application (August 2005) that Alternative 2 (Replace) is the least environmentally damaging alternative in regards to impacts to wetlands, tributaries, and plant communities, as well as to wildlife species such as the Red Tree Vole. However, Caltrans asserted that the cost for Alternative 2 is 50% higher than for Alternative 3 ($15 million vs. $10 million), and that developing engineering and design plans for Alternative 2 would delay the project for four years, thus increasing the risk to the public should the existing bridge be damaged during a flood or seismic event. Caltrans therefore concluded that Alternative 3 (Eastern Alignment, the proposed project) is the least environmentally damaging practicable alternative. I will therefore concentrate my discussion of the alternatives to Alternatives 2 and 3. In Attachment 1, I summarized the data that Caltrans presented in this application comparing the main habitat impacts of these two alternatives.

Prior to this application, Caltrans had identified Alternative 3 (Eastern) as the least environmentally damaging alternative, rather than Alternative 2 as is now acknowledged. Alternative 2 would be built using half-width construction, retaining the 4 existing piers, and adding 4 additional piers next to the existing ones. In contrast, Alternative 3 would require only 2 piers, neither in the creek channel. Alternative 2 would thus require more footings compared to Alternative 3, and would also require excavating and strengthening the four existing footings (including the one in the Greenwood Creek channel), thus prolonging the construction period. Therefore, in the Environmental Assessment (2002) and CDP application to Mendocino County for this project, Caltrans had determined that Alternative 3 would be the less environmentally damaging alternative.

However, that analysis had not taken into consideration the two Alternatives' comparative impacts to other habitats (including wetlands, tributaries, and coniferous forests), and to Special Status wildlife species such as the Red Tree Vole. Caltrans had dropped from consideration all alternatives except Alternative 3 before substantial environmental analysis had been completed. Beginning with Commission staff's first review of the project proposal in July 2003, Commission staff has advised Caltrans repeatedly of the need for comprehensive baseline environmental assessments for this project, including a wetlands delineation, vegetation mapping, and surveys for special

status wildlife surveys.[1, 2, 3, 4] Yet prior to the current application, adequate baseline environmental assessments had not been conducted, and thus it is not surprising that the environmental impacts of the project alternatives had not been properly analyzed.

Baseline Environmental Assessments

This application contains recently completed baseline environmental assessments of the project site, including a wetland delineation, a map of plant communities, a map of trees >2 inches diameter at breast height (dbh), and surveys for Special Status wildlife species (i.e., Marbled Murrelet, Point Arena Mountain Beaver, Red Tree Vole, California Red-Legged Frog, Tailed Frog, and Southern Seep Salamander). This information has greatly improved the knowledge of the natural resources on the project site, and has thus enabled a more accurate evaluation of the environmental impacts of the proposed project and potential project alternatives.

For example, during the August 2005 wildlife surveys, several Special Status wildlife species were observed at the project site, including Red Tree Vole, Purple Martin, Northern Spotted Owl, Foothill Yellow-legged Frog, and a Myotis bat). Caltrans Biologist Don Schmoldt had previously stated[5] that Caltrans did not need to conduct surveys for Special Status wildlife species that may occur at the site, because Caltrans staff would have spotted these species during staff's numerous site visits.

The project's wetlands and creeks were also poorly documented in the environmental documents prepared prior to this application, and thus in the CDP application to Mendocino County:

- Caltrans' Environmental Assessment (2002) stated the project would impact 0.02 acre of wetland (a freshwater seep), which was identified as the only wetland on the project site. Only one tributary (Bonee Gulch Creek) was documented in the project area.
- Caltrans' January 2005 California Coastal Commission Wetlands Delineation Report identified 3.7 acres of wetlands on the project site, and stated the project will impact 2.22 acres of wetlands. Three tributaries were documented in the project area, all of which will be impacted. But this delineation study was seriously flawed, and Commission staff recommended that Caltrans conduct a new delineation (see Attachment 2 for the evaluation).
- Finally, Caltrans' August 2005 Coastal Commission Wetlands Delineation Report ascertained that a large portion of the project site is wetlands, and stated the

[1] July 3, 2003 Comment Letter from Randall Stemler (Coastal Commission analyst) to Caltrans on their CDP application to Mendocino County.
[2] August 2004 to May 2005 Correspondence from Melanie Faust (Coastal Commission analyst) to Caltrans discussing outstanding project information needs.
[3] March 25, 2005 Memo from Vanessa Metz (Coastal Commission Analyst): Information Needed from Caltrans to Evaluate Environmental Impacts of Greenwood Creek Bridge Replacement Project.
[4] June 14, 2005 Memo from Vanessa Metz (Coastal Commission Analyst): Evaluation of Wetland Delineation Data Sheets and Maps for the Greenwood Creek Bridge Replacement Project.
[5] Pers. Comm. at September 13, 2004 site visit attended by Costal Commission and Caltrans staff.

> project will impact 3.75 acres of wetlands (0.61 acres permanently). Four tributaries were documented in the project area, all of which will be impacted.

Thus, the Environmental Assessment (2002) failed to identify 99% of the impacted wetlands on the site that were identified in the August 2005 Wetlands Delineation Report. This Wetland Delineation Report also documented 5 additional freshwater seep wetlands, for a total of 6 in the project area. These are the small wetlands that Caltrans refers to as "Jurisdictional Wetlands" or "ACOE Wetlands" in the project documents. Freshwater seep wetlands should be accorded extra protection, as they provide specialized habitat for species such as the southern seep salamander, and they are also difficult to create off-site for mitigation. One of these freshwater seep wetlands is located immediately adjacent to the south leg of the access road. The project description calls for widening the access road "as necessary," which may impact this seep wetland by filling it or changing its hydrology. Another freshwater seep wetland is located at the south end of the proposed roadway realignment, adjacent to the existing roadway. Caltrans proposes to fill this seep wetland to make room for the roadway realignment. Modifications to the proposed project (or to the project alternatives) that would reduce the length of required roadway realignment, and thus avoid impacting this wetland, should be considered. Caltrans should ensure that impacts to these seep wetlands are avoided if possible.

Section 3.1-2 of the Mendocino County LCP requires determining the extent of wetlands, riparian zones, and sensitive habitat areas, and reads in part (emphasis added):

> "Development proposals in environmentally sensitive habitat areas such as **wetlands, riparian zones on streams or sensitive plant or wildlife habitats** (all exclusive of buffer zones) including, but not limited to those shown on the Land Use Maps, shall be subject to **special review to determine the current extent of the sensitive resource**."

The riparian corridors on the project site are also considered by the Coastal Commission to be a protected riparian ESHA resource, as defined in Section 30107.5 of the Coastal Act. In addition, the August 2005 wildlife surveys found that the coniferous forest on the project site provide habitat for Special Status wildlife species such as the Red Tree Vole and Northern Spotted Owl. This CDP application also states that California Natural Diversity Database (Calif. Dept. of Fish and Game, 2003) has designated some of the plant communities found on the site as "rare and worthy of consideration." Caltrans estimates that a total of 4.62 acres of Rare Plant Communities will be impacted by the project (0.77 acres permanently). However, no State or Federally Listed Endangered, Threatened, or Rare Plants (Calif. Dept. of Fish and Game) have been observed on the property.

In 2004, Mendocino County's planner Rick Miller asked Caltrans to confirm that construction that will occur in the County permit area is located outside of any ESHA or ESHA buffer. Caltrans replied that "it is difficult to determine with certainty that there are no ESHAs located in the County's permit jurisdiction…Nonetheless, it appears that the wetlands and the animal habitats are located within the Coastal Commission

jurisdiction." [6] However, it is now known that the County's jurisdiction contains wetland and riparian ESHA, and four tributaries. Therefore, the CDP application to Mendocino County was deficient in that it did not evaluate the extent of potential ESHA on the site.

The Negative Declaration for the project (approved December 2002) was prepared before wetland delineations were conducted for the site, and thus before Caltrans recognized that the site has more than 0.02 acre of wetlands. The Negative Declaration determined that the project will have "no significant impact" on wetlands" (later revised to "less than significant impact"). Furthermore, Caltrans has made numerous modifications to the project since the environmental documents and agency approvals were prepared. This determination, along with the environmental permits from the resources agencies, should be revised based upon the current knowledge of the extent of wetland habitat, tributaries, plant communities, and wildlife species the project will impact.

Environmental Impacts of Project Activities

Although the August 2005 natural resources surveys greatly improved Caltrans' baseline assessment of existing habitats, the impact of project activities on the site's existing habitat has still not been detailed. Caltrans has outlined the temporary impact area and the permanent impact area on their project impact maps (see Attachments 3, 4, and 5), and has provided values for the total acreage of various habitats that will have temporary vs. permanent impacts (see Attachment 1). However, the application does not detail which specific project activities will occur in each of the impact areas, and does not describe the exact nature of the impact. For example, it is not stated which of the permanent impacts are due to placement of permanent structures such as bridge footings, as opposed to areas for construction staging and the siltation pond, which could potentially be relocated. A comprehensive project description is needed that describes in detail the nature and extent of the project's activities in each of the impact areas, including the severity and duration of impact.

Caltrans should provide adequate justification for major project impacts, such as the removal of approximately 2.5 acres of riparian habitat for construction work under the bridge. This habitat area includes Douglas fir and grand fir trees, the primary habitat for the Red Tree Vole and foraging habitat for the Northern Spotted Owl, which are both sensitive species that have been observed on the project site. A range of potential modifications to the proposed project (such as narrower shoulders and a reduced speed) could potentially be less environmentally damaging. A reduction in the width of the bridge and highway would require less extensive roadway realignment and a smaller project footprint, and would reduce landform alterations and the resulting environmental impacts.

The length of roadway to be realigned for Alternative 2 (Replace) and Alternative 3 (Eastern) appears on the alternatives' impact maps to be approximately the same length. It is unclear why the roadway realignment for Alternative 2 would need to be as extensive as for Alternative 3, as Alternative 2 shifts the bridge centerline by only 10

[6] April 28, 2004 Memo to Coastal Permit Administrator from Rick Miller (Mendocino County planner): Responses to CPA Questions/comments via email dated April 27, 2004.

feet to the west, rather than 40 feet to the east for Alternative 3. In addition, the eastern roadway shoulder for Alternative 2 will be only 4 feet wide, instead of the 8-feet wide shoulder required for Alternative 3 to provide a safety buffer from the adjacent retaining wall. Reducing the length of roadway realignment would reduce the amount of impact to the wetlands and other habitats proposed for removal to make way for the new roadway.

When the resource agencies (i.e., NOAA Fisheries, Calif. Dept. of Fish & Game, and U.S. Fish & Wildlife Service) reviewed the project, they were not asked to evaluate the impacts of the project alternatives. For example, during our site visit in September 2004, Peter Johnsen of NOAA Fisheries confirmed that his agency was asked only to evaluate the proposed project alternative (Alternative 3, Eastern Alignment), and that NOAA Fisheries would require a formal consultation to evaluate the project alternatives. Therefore, it is not known whether these agencies would determine that one of the other potential project alternatives is less environmentally damaging to the habitats and species of concern to these agencies.

Management Measures to Minimize Impacts

The Environmental Assessment (2002) contained several Management Measures regarding work windows and creek setbacks, intended to minimize potential impacts to biological resources and water quality. Several of these Management Measures were also conditions of approval for permits by some of the resources agencies. However, the project has now been modified to eliminate several of these Management Measures, and I am concerned that these modifications will greatly weaken resource protection.

For example, work window and creek buffer Management Measures listed in the Environmental Assessment (2003) that have been weakened or eliminated in this proposal include:

1) Activities will be restricted to a work window between July 10 and October 15, to minimize impacts to Northern California steelhead.

   - But in the current proposal, certain activities that will occur more than 30 feet from top-of-bank of Greenwood Creek will be conducted **year-round**. These activities include, among others, work on the retaining wall, work on bridge abutments, and work on the roadway approaching the bridge. Caltrans states that these '"roadway elevation" activities are not likely to adversely affect the Northern California steelhead.

   My comment: These activities will involve disturbing the soil and creating large cut and fill slopes, and have a high risk of erosion and sedimentation. There are four tributaries to Greenwood Creek that will be impacted by the project, and these tributaries could carry sediment to Greenwood Creek. Roadway elevation activities that disturb soil should thus not be allowed to occur during the rainy season, especially near the tributaries. In addition, the work window should also take into account the potential impact to other fish and wildlife species.

2) No work will be allowed at night, when Northern Spotted Owls would be actively foraging.

   - But the current proposal allows **work at night** from August 15 and October 15. This window is based on FWS and NOAA Fisheries requirements.

   My comment: Night-time construction activities have the potential to impact and Northern Spotted Owls foraging at the site, and Marbled Murrelets traveling over the site to their foraging area at sea. Night work should be avoided if possible.

3) Activities between 10 and 30 feet from top-of bank of Greenwood Creek will be restricted to a work window between July 10 and October 15, to minimize impacts to steelhead.

   - But in the current proposal, the work window has been extended to between **June 1** and October 15, because the pier and abutment construction will consist of the cast in drill hole (CIDH) method, which is quieter than pile driving. (The pile driving work window still starts on July 10.)

   My comment: The work window should also take into account the potential impact to wildlife species.

4) A work window of July 10 to October 15 was established for work in the Greenwood Creek Riparian area, between 10 and 30 feet from top-of-bank, to protect Northern California steelhead.

   - But the current proposal states that work can occur on the south side of Greenwood Creek, above the top of the south bank, **year round,** "since the river is buffered by riprap."

   My comment: This is not a valid justification, as riprap in the creek does not help to "buffer" the creek from sedimentation and other polluted runoff. In addition, only a small stretch of the creek is riprapped. Construction activities that disturb soil in the riparian area should thus not be allowed to occur during the rainy season.

5) **A 10-foot buffer** from Greenwood Creek's top of bank will be in place, and construction activities will not take place in this buffer.

   - But in the current proposal, the 10-foot buffer along the south bank of Greenwood Creek is eliminated, and construction activities can extend to top of bank, with **no buffer.** Caltrans states that this because the creek is "protected by riprap."

   My comment: Riprap in the creek does not protect the creek from sedimentation and other polluted runoff. A 10-foot buffer from the top of bank of Greenwood Creek should be the minimal size buffer maintained on both sides of the Creek, and a larger buffer would be preferable.

6) All work on installation of the culvert in Bonee Gulch Creek will occur during the summer months, when water levels are the lowest, to minimize impacts to the creek.

   - But the current proposal allows for **year-round** work for "roadway elevation" activities.

   My comment: Many of the roadway-elevation construction activities will involve extensive cut and fill; activities that disturb soil in the riparian area should not be allowed to take place during the rainy season. The work window should also take into account the potential impact to other fish and wildlife species.

Agency Approvals

The environmental documents that Caltrans' had previously prepared for this project (i.e., Environmental Assessment, Biological Assessment, Natural Environmental Study, and Erosion Control and Revegetation Plan), which both the CDP application to the County and the current CDP application to the Commission rely on, were completed in 2001-2003. This is problematic because the other permitting agencies (i.e., Mendocino County, NOAA Fisheries, Calif. Dept. of Fish & Game, Regional Water Quality Control Board, U.S. Army Corps. of Engineers, and U.S. Fish & Wildlife Service) conducted their environmental evaluation of the project before Caltrans had accurately assessed the project site's potentially sensitive habitats (e.g., wetlands, tributaries, and plant communities) and Special Status wildlife species.

Caltrans has recently applied to several of the resources agencies for amendments to their permits/agreements. The permit amendments are to take into account Caltrans' newly obtained information on the natural resources of the site, plus some recent project modifications. However, only a subset of the new resources information and project modifications have been included in the amendment application to each agency, and I am concerned that these agencies are not receiving the full story. Some of the project modifications regarding work windows and creek buffers (see above) also apparently contradict conditions required by other permitting agencies.

For example, the project description in this CDP application (August 2005) has been modified to allow construction activities located greater than 30 ft from the top-of-bank of Greenwood Creek (including the culvert extensions) to continue year-round, "because these 'roadway elevation' activities are not likely to adversely affect the Northern California steelhead." However, the U.S. Army Corps of Engineers (ACOE) permit for this project (March 2004) had a condition stating: "All work within the jurisdiction of the Corps shall occur between June 15 and October 15." When Caltrans recently applied for an amendment to the ACOE permit (June 2005), the project description stated that to minimize impacts to the tributaries resulting from culvert extensions, "all work will occur will occur during the summer months, when water levels are the lowest."

Temporary vs. Permanent Project Impacts

Many of the project impacts that Caltrans has classified as "temporary" impacts instead appear to actually be permanent impacts. This has important ramifications for developing adequate mitigation plans, which often specify a higher mitigation ratio for permanent than for temporary impacts. For example, Caltrans notes in their Alternatives Impacts Matrix that the mitigation ratio will be 3:1 for permanent wetland impacts, and 1:1 for temporary wetland impacts. The erroneous classification of temporary vs. permanent impacts also has consequences for properly comparing the relative impacts and project costs of the project alternatives,

The project description in the application quantifies temporary vs. permanent impacts to various project habitats, but does not describe the nature and severity of these "temporary" impacts. For example, whether vegetation in an area will be trimmed or whether it will be bulldozed is not apparent. Thus, it is difficult to evaluate whether these impacts can properly be construed as temporary or not. However, I infer from the project maps and data tables that for any area that will be revegetated, Caltrans has classified the project impacts as "temporary" impacts, even if the original vegetation will be completely removed. Apparently, Caltrans only classified as "permanent" impacts those areas that will be permanently covered by structures (such as the roadway and pier footings). If this is indeed the case, this is an erroneous classification.

The category of "temporary impacts" should include only those impacts that will take less than a year to return to pre-impact condition, such as trimming trees or temporarily laying down riparian vegetation under tarps. Any activity that kills vegetation should be classified as a severe temporary impact or a permanent impact, depending on the time required for the plant community to reestablish. If it takes longer than one year to restore the plant community to pre-impact conditions, the impact should be considered a permanent impact. Removing large trees is thus a permanent impact. If the soil is significantly disturbed, this is also a permanent impact.

For example, one of the largest habitat impact areas will be the construction clearing under the bridge. The application states that: "Maximum vegetation removal will consist of clearing an area approximately 13.7 m (45 feet) upstream and 46 m (151 feet) downstream of the proposed bridge. It is anticipated that a bulldozer and/or backhoe will be used to remove the vegetation." The project impact maps show that this approximately 200-foot wide impact area extends along the entire length of the new 554-ft long bridge, resulting in a clearing covering approximately 2.5 acres of Greenwood Creek's riparian slopes.

Caltrans Biologist Don Schmoldt stated in May 2005 that the project will require the "'temporary' removal of a maximum of 5 acres of trees surrounding the bridge, consisting primarily of alders, but will include the removal of about 50 small to medium size Douglas fir" (emphasis added).[7] At least a portion of this habitat impact should clearly be classified as a permanent impact; however, the application's project impact

[7] Email correspondence from Gordon Gould (Calif. Dept. of Fish and Game) to Don Schmoldt (Caltrans) on 05-06-05. Appendix S, Greenwood Creek Bridge Replacement CDP Application and Report, August 2005.

maps and data tables all indicate that this area of clearing is a "temporary" impact. Removing Douglas fir trees should definitely be considered a permanent impact. Coast Douglas fir trees commonly live more than 500 years and occasionally more than 1,000 years, and appreciable seed production does not begin until age 20 to 30 years.[8] Douglas fir trees can be difficult to regenerate, because shade and moisture competition from competing vegetation (i.e., understory hardwoods, shrubs, and grasses)--which grow much more quickly on disturbed sites than young Douglas-fir--can kill Douglas fir seedlings[9].

The project description states that "all trees within each alternative's construction limits will be removed" and that "most impacts [to trees] will be permanent." Therefore, it is not clear what the project's "temporary impact" to 2.0 acres of Coastal Coniferous Forest as listed in the application's Alternatives Impact Matrix (Figure 5) will entail. A breakdown listing the acreage of the various areas of the project that were added to determine the total acreage of permanent vs. temporary impact areas would be helpful.

Another point of confusion is that on the maps showing the temporary vs. permanent impacts to the project's wetlands (see Attachments 3 and 4); some areas are shown as a temporary impact on one map but as a permanent impact on the other map. It is thus unclear to which impact category Caltrans has assigned the area. For example, Bonee Gulch Creek's fill slope (60 linear feet) is mapped as both a temporary impact area (Attachment 3) and as a permanent impact area (Attachment 4). Covering this creek's riparian area with a fill slope is obviously a permanent impact to the creek's riparian habitat, but it is unclear whether this area was correctly listed as a permanent impact in the tabulation of permanent vs. temporary habitat impacts.

Mitigation Plans

Caltrans failed to include a mitigation plan in this application, detailing how they will mitigate for the impacts to wetlands and non-wetland habitats, and for impacts to special status animal species. Mitigation was also not discussed in the application's project description. This is a major deficiency in the application.

A Wetland Mitigation Plan and a Revegetation Plan (for the non-wetland habitat including the coniferous forest) should be prepared by a qualified restoration ecologist and include, at a minimum: a baseline assessment of the restoration site; the goals of the restoration plan; planned site preparation; a detailed planting plan; a plan for reporting upon completion of the initial restoration activities; a monitoring and maintenance plan; final success criteria; the method by which to judge success; a plan for a final report at the end of the monitoring period; and provisions for possible further action.

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[8] Uchytil, R. J. 1991. Douglas-Fir Pseudotsuga menziesii var. menziesii. In: Fire Effects Information System. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory.

[9] Kocher, S. D. Douglas-Fir (*Pseudotsuga menziesii*). In: Working in the Woods, a Guide for California's Forest Landowners. University of California Cooperative Extension, Forestry. 1990.

Replanting in-kind those areas in which vegetation has been removed is not adequate compensatory mitigation for permanent impacts to vegetation. Potential side effects to vegetation removal that may contribute to difficulties in revegetation include compacting soil with heavy equipment, damaging tree roots, destroying soil microorganisms, and altering natural drainage patterns. Despite good intentions and the best available techniques, recent studies have shown that wetland restoration efforts are often unsuccessful. A mitigation plan is needed that provides an appropriate mitigation ratio, identifies a suitable location for the mitigation site that is large enough to accommodate the plantings, and ensures the restoration of habitat functionality.

- Mitigation for Wetland Habitats

Caltrans' had previously submitted a Wetland Mitigation Plan (Sept. 2004) to Commission staff prior to this CDP application (see Attachment 6). However, this Wetland Mitigation Plan is wholly inadequate. The entire plan submitted to Coastal Commission staff consists of a 1-page diagram of cells to be excavated adjacent to an "existing mitigated area" which was not named. The Wetland Mitigation Plan lacks a comprehensive project description detailing the wetland function and acreage proposed to be lost, and the wetland function and acreage to be gained by the restoration. The Plan's notes describe excavation depth, and the stockpiling and replacement of topsoil, but no accompanying text was included to describe the methodology to be used for restoration and monitoring. In response to Coastal Commission staff's request for a more detailed Wetland Mitigation Plan, Caltrans just submitted additional diagrams of the cell excavation.

The Wetland Mitigation Plan (Sept. 2004) was also prepared before the wetlands on the project site were fully identified and delineated (August 2005). The Environmental Assessment (2002) identified only one 0.02 acre freshwater seep wetland on the project site, and stated that the proposed mitigation for filling the seep wetland "consists of grading an upland area adjacent to the affected area to allow the formation of a similar seep-generated wetland near the existing wetland, at a 1:1 ratio." This is an unacceptable procedure for mitigating permanent impacts to wetland habitat. Previous Coastal Commission actions have required that permanent impacts to wetlands be mitigated at a 3:1 ratio, with favorable consideration given to mitigation sites in, or as close as feasible to, the affected area. Greater ratios are appropriate if off-site mitigation areas are selected.

A complete Wetland Mitigation Plan is needed that includes a comprehensive description of the proposed mitigation for the 3.75 acres of wetland habitat (including 0.61 acres permanently impacted) that the August 2005 Wetland Delineation stated will be impacted. The nature and severity of the project's "temporary" impact to wetlands must be detailed, and appropriate mitigation for this temporary impact must be included in the mitigation plan.

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Mitigation for Non-Wetland Habitats

A detailed mitigation plan must also be prepared for both temporary and permanent impacts to non-wetland habitats (including the Coastal Coniferous Forest, and Rare Plant Communities). The Negative Declaration (2002) stated that:

> "Potential impacts to vegetation will be mitigated on site. An Erosion Control and Revegetation Plan has been developed to restore and monitor the impacted areas. With mitigation, vegetation impacts will be reduced to a nonsignificant level."

However, replanting in-kind on those areas where vegetation has been removed (sometimes referred to as "self-mitigation") is insufficient mitigation for this impact. In similar projects, the Commission has required a mitigation ratio for removal of coniferous forest in a 10:1 ratio. It is likely that an off-site mitigation area will be needed to accommodate this project's required mitigation. This determination was also made before an adequate mapping of the project's plant communities had been conducted, and before the extent of the project's impact to the vegetation was adequately quantified.

Prior to this application, in December 2004 Caltrans submitted to Commission staff a Planting Plan that lists hundreds of trees of several species to be replanted in the impacted areas. However, it is unclear how the project site could accommodate this large number of trees (many times the number of trees to be removed) without overcrowding the seedlings and reducing their survival rate. This CDP application does not include either off-site or on-site mitigation plans.

The Revegetation Plan also contains an inadequate monitoring plan and success criteria. The Re-vegetation Plan (pg. 8) lists three first-year Success Criteria for re-vegetation. Two criteria are soil surface stabilization and control of invasive species. The third criterion is that total cover is 75% or greater; however, "this is cover from seed, plantings and mulch" (emphasis added), with "no areas larger than 2.5 x 2.5 meters not containing grass, shrub or tree cover." This is an inadequate indicator of success, as an area would be deemed successfully re-vegetated using these criteria if 75% of the area was covered with mulch after a year, with a plug of grass every 2.5 meters.

A more appropriate re-vegetation success criterion would be one based on the survival of plantings, rather than percentage surface area covered by mulch. In addition, requiring only 75% total cover by mulch and vegetation after a year is unacceptably low, as that would allow up to 25% of the area to be bare soil, subject to erosion. The Revegetation Plan needs final success criteria that ensure that the restoration results in a functioning habitat that replaces lost habitat values.

- Mitigation for Wildlife Impacts

Sensitive animal species that could potentially be found on the project include several species listed as Endangered and Threatened (i.e., Northern Spotted Owl, Marbled Murrelet, Point Arena Mountain Beaver, Tidewater Goby, Coho Salmon, and Northern California Steelhead), and several state Species of Special Concern (i.e., Red Tree

Vole, California Red-legged Frog, Foothill Yellow-Legged Frog, Tailed Frog, Myotis bats, and Purple Martins).

Several Special Status species were observed on the project site during surveys conducted in August 2005: Red Tree Vole, Purple Martin, Northern Spotted Owl, Foothill yellow-legged frog, and Myotis bats. Northern rough-winged swallows were also observed nesting under the bridge, and may be impacted by the project, although this is not a special status species. Caltrans' should develop a Mitigation Plan that incorporates appropriate mitigation measures for temporary and permanent impacts to each of these species found to use the project site.

Caltrans has also not submitted a comprehensive plan for mitigating for the temporary and permanent impacts of the project on sensitive wildlife species. Although the CDP application does not include a Mitigation Plan, the project description does list a few mitigation measures for some species. The Environmental Assessment (2003) also lists some mitigation measures that Caltrans would take to minimize the environmental impact of the proposed project. However, these mitigation measures are minimal, and are inadequate for most species.

- Mitigation for California Red Tree Vole

California Red Tree Vole (*Arborimus pomo*) is a state species of Special Concern and a federal species of Concern. This species is endemic to Douglas-fir forests in coastal northern California, where they are found primarily in mature or old-growth coast Douglas-fir trees. The Red Tree Vole nests almost exclusively in the foliage of Douglas-fir trees, and their diet consists chiefly of coast Douglas-fir needles. Due to their reliance on Douglas fir and their arboreal existence, this species may be greatly affected by habitat fragmentation and alteration of canopy structure, which may impact its dispersal ability.[10] This has important implications for the maintenance of genetic diversity in Red Tree Vole populations.

A formal protocol survey for this species was conducted in 2005, which documented Red Tree Vole activity (including nesting and foraging) in 24 Douglas fir and grand fir trees on the project site. All fir trees within the project area provide potential vole habitat; approximately 132 potential Red Tree Vole trees were documented within the project area.

Caltrans' Environmental Assessment was conducted before this survey took place, therefore before any voles were known to occur on the project site. The Environmental Assessment (2003) stated that the project may affect Red Tree Voles, and proposed mitigation for potential impacts to Red Tree Voles consisting of "avoiding removal of coniferous trees to the extent possible, especially Douglas fir (*Pseudotsuga menziesii*)" (emphasis added). This mitigation is insufficient, as Douglas-fir trees are long-lived and can be difficult to regenerate, and it will take a number of decades to replace the habitat value that the mature canopy provides for species such as Red Tree Voles and

[10] California Department of Fish and Game. 1986. Mammalian Species of Special Concern in California, Red Tree Vole. In Williams, D. F. 1986. Mammalian Species of Special Concern in California. Wildlife Management Division Administrative Report 86-1.

Northern Spotted Owls. Therefore, a Mitigation Plan is needed that provides sufficient justification for the removal of Douglas-fir trees, provides appropriate mitigation for the potential impacts to species that use this habitat, and ensures the restoration of habitat function.

In addition, measures must be taken to reduce impacts to any voles present in the fir trees at the time of their removal, such as moving the voles to other trees before removing the trees. Tree removal during the vole nesting season should also be avoided.

- Mitigation for Northern Spotted Owl

The Northern Spotted Owl (*Strix occidentalis caurina*) is a federally listed Threatened species that inhabits mature Douglas-fir forests. Caltrans observed and photographed one Northern Spotted Owl roosting on the project site, during their August 2005 wildlife surveys. Gordon Gould of the Calif. Dept. of Fish and Game has reported two Northern Spotted Owl nests within a 1.5-mile radius of the Greenwood Creek Bridge. Mr. Gould stated that "heavy equipment or any loud activity at the construction site shouldn't occur at night in case [Northern Spotted Owl Nest] MD 221 is occupied. And certainly having the construction later in the year would help, too." [11]

Caltrans' Biological Assessment (2001) stated that suitable foraging and dispersal habitat exists at the project site for this species. The Northern Spotted Owl Recovery Plan (1992) emphasized that dispersal habitat provides an important linkage among blocks of nesting habitat, and is essential to conservation of the species. Because dispersal habitat must consist of forest stands with adequate tree size and canopy closure to provide some protection from avian predators and some foraging for the owls, the impact on this species of the removal of mature Douglas-fir forest should be taken into consideration in Caltrans' mitigation plan. Red Tree Voles are a major prey item for this species, and thus the impact to owls should be considered when removing fir trees that are the voles' habitat.

- Mitigation for Bridge-Nesting Species

Northern rough-winged swallows were observed nesting under the bridge. Caltrans proposes placing exclusionary netting under the old bridge by the end of March, prior to the swallow nesting season (April through August), to prevent swallows from nesting on the bridge during demolition. Providing alternative artificial nesting sites should also be considered.

Myotis bat species (*Myotis* spp.) are Federal Species of Concern. An unidentified species of Myotis bat was observed feeding at dusk in Greenwood Creek. These bats may potentially nest under the bridge; providing alternative artificial nesting sites should also be considered.

[11] Email correspondence from Gordon Gould (Calif. Dept. of Fish and Game) to Don Schmoldt (Caltrans) on 05-06-05. Appendix S, Greenwood Creek Bridge Replacement CDP Application and Report, August 2005.

Feasibility of Project Alternatives

Caltrans concluded in this CDP Application and Report (August 2005) that based on cost and delay factors, Alternative 3 (the proposed project) is the least environmentally damaging practicable alternative:

> "While Alternative 2 – Replace and Widen Bridge is least environmentally damaging to wildlife species such as the Red Tree Vole and to all types wetlands, the cost is 50% higher than Alternative 3 ($15 million instead of $10 million). Additionally, the development of engineering and design plans for this alternative would delay the project by four years, increasing the risk to the public should the existing bridge be damaged during a flood or seismic event. Alternative 3 – Proposed Eastern Alignment is the least environmentally damaging practicable alternative."

- Comparative Cost of Alternatives

Caltrans did not provide an adequate breakdown of the total project costs for the project alternatives, including mitigation costs. As Caltrans is asserting that a higher project cost for Alternative 2 (the least environmentally damaging alternative) compared to Alternative 3 (the proposed project) is one of the reasons Alternative 2 is not practicable, a detailed breakdown of the project costs is needed. The cost comparison Caltrans presents in the Coastal Commission Alternatives Impact Matrix table lists the total project cost for Alternative 2 (Replace and Widen) as $15 million, and for Alternative 3 (Eastern Alignment) as $10 million. It is unclear which of the other costs listed in the table are included in that figure.

The table states that the mitigation cost for Alternative 2 is 25-30% of the total project cost, so I assume this mitigation cost has been included in calculating the total project cost for this Alternative. This seems to be a high cost for mitigation, but because Caltrans did not submit a mitigation plan, it is difficult to evaluate whether this estimate is reasonable. Coastal Commission Ecologist John Dixon provided a generic estimate that mitigation costs to restore or create on-site 1.0 acre of Seasonal Wetlands habitat would be about $133,486, as of January 2004. In addition to the cost of ground preparation, plants, and labor for planting, an estimate for mitigation costs should include the costs of planning, performance monitoring, maintenance, and land acquisition (if required). If land acquisition is a major part of the mitigation cost for this project, this may explain the high cost.

The total project costs for the Alternatives shown in this table are misleading, because the table apparently does not include the mitigation cost in the total project cost for Alternative 3 (the proposed project), although it apparently does for Alternative 2. Instead, the table solely states that the mitigation cost for Alternative 2 "would result in 85% of Alternative 3's cost to mitigate temporary wetland impacts, and 55% of Alternative 3's cost to mitigate permanent wetland impacts." The table also states there is a "3:1 cost ratio for permanent impacts, and 1:1 cost ratio for temporary impacts."

Because the Alternatives Impact Matrix table did not explicitly state the value of the mitigation costs for each of the two main alternatives, I undertook the following calculation of the mitigation costs, based upon the information presented in the table.

- Calculating Wetland Mitigation Costs for Alternative 2 (Replace and Widen):

For Alternative 2, the table indicates that the mitigation cost is approximately 25-30% of the total $15 million cost, which comes to $3.75 to 4.5 million. (It also states that the mitigation cost is "Mostly due to work windows," but the meaning of this statement is unclear). The table states that this mitigation cost includes $400,000 for "fish passage mitigation." Subtracting the fish mitigation amount from the total mitigation cost leaves $3.4 to 4.1 million; for the purpose of this calculation, I will use the high-end value of $4 million. I will also assume that Caltrans intended the remainder of the mitigation cost for wetland mitigation, as they compared the two alternatives' impact percentages only for wetlands (see above).

Alternative 2's permanent wetland impact is 0.3 acres, multiplied by a cost factor of 3 (for mitigating permanent impacts), resulting in 26% of this Alternative's total wetland mitigation cost. Alternative 2's temporary wetland impact is 2.5 acres, multiplied by a cost factor of 1, resulting in 74% of the total wetland mitigation costs.

Therefore, out of Alternative 2's $4 million wetland mitigation costs, the rough estimate for mitigation costs for permanent vs. temporary impacts to Alternative 2's wetlands is:

Mitigation cost for Permanent wetland impacts = 26% of total 4 million = 1 million

Mitigation cost for Temporary wetland impacts = 74% of total 4 million = 3 million

- Calculating Wetland Mitigation Costs for Alternative 3 (Proposed Project):

The Alternatives Impact Matrix table states that Alternative 2 would result in 55% of Alternative 3's cost to mitigate permanent impacts, and 85% of Alternative 3's cost to mitigate temporary impacts. This percentage is evidently based on the relative amount of impacted wetland acreage for each of these two alternatives.

Therefore, using these percentages, the rough estimate for mitigation costs for permanent vs. temporary impacts to Alternative 3's wetlands is:

Mitigation cost for Permanent wetland impacts = 145% of Alternative 2's 1 million = 1.45 million

Mitigation cost for Temporary wetland impact = 115% of Alternative 2's 3 million = 3.45 million

Total estimated wetland mitigation cost for Alternative 3 = $4.9 million

Using these rough calculations, the total project cost for Alternative 3 (Eastern Alignment) would be $10 million plus $4.9 million in mitigation costs, for a total of $14.9

million. Thus the total project cost for Alternative 3 would be comparable to the $15 million total project cost of Alternative 2 (which presumably includes mitigation costs).

Although mitigation for project impact to non-wetland habitats and to sensitive animal species will also likely be required, the proposed project (Alternative 3) will have greater impacts to all the impacted habitats surveyed, and to the Red Tree Vole, and thus any additional mitigation cost would be expected to be higher for Alternative 3 than for Alternative 2 (Rebuild). Alternative 3 also requires property acquisition for access and easements (which Alternative 2 does not), and thus the acquisition costs should be added to the total project cost for Alternative 3.

Caltrans also estimated a $1 million cost to the pubic from vehicle delays in Alternative 2, vs. "minimal" costs for public delays in Alternative 3. It is unclear whether this cost of delay to the public was included in the total project cost for Alternative 2, but it does not seem appropriate to include this cost in calculating a project 's total cost. In addition, a 3% per year cost escalation was added to the cost of Alternative 2. When all of these components of the total project cost are factored in, it may well be likely that the costs of these two Alternatives are comparable.

- Project Delay

Caltrans concluded that Alternative 2 (Replace and Widen) is not practicable due to higher project costs, and because it would take four more years to prepare new engineering plans for this Alternative. It is unclear why it would take so many years to design this Alternative, particularly because the baseline environmental assessments have already been conducted for this project. It's important to note that five years ago, Caltrans' 1999 Supplemental Project Scope Summary Report (Structure Replacement) presented Alternative 2 (widening the existing bridge) as the preferred alternative. This report stated that the increased environmental impact resulting from the required roadway realignment for Alternative 3 (Eastern Alignment) did not justify moving the bridge to a new alignment.

Caltrans had decided upon the current project proposal (Alternative 3, Eastern Alignment) years before they had completed an adequate baseline assessment of the project site's environmental resources. The project's wetlands delineation, plant community mapping, and surveys for sensitive wildlife species were not completed for the project until this month (August 2005). The project's earlier environmental studies (e.g., Environmental Assessment (2003), Biological Assessment (2003), Natural Environmental Study Report (2002), and wetland delineations performed earlier this year) were incomplete or inaccurate, and did not reveal the extent of the project's impact to natural resources. For example, as detailed earlier in this memo, the Environmental Assessment grossly underestimated the extent of wetlands on the project site, and failed to recognize three of the four tributaries that would be impacted by the project. Consequently, prior to August 2005, Caltrans' project documents incorrectly concluded that the proposed project (Alternative 3, Eastern Alignment) is the least environmentally damaging alternative.

By not seriously taking environmental considerations into account early in the design process, Caltrans has invested substantial time in developing engineering and design plans for a project Alternative they had erroneously identified as the least environmentally damaging. Although it would have been preferable if Caltrans had focused their efforts on designing a less environmentally damaging Alternative years ago, a delay of four more years while engineering and design plans are developed for Alternative 2 does not appear to make this Alternative unfeasible.

Conclusion

The proposed project will fill 0.61 acres of wetlands and temporarily impact an additional 3.14 acres of wetlands, including wetlands in the Coastal Commission's jurisdiction. There is a less environmentally damaging feasible alternative for the proposed project (i.e., Alternative 2, replace and widen existing bridge). Feasible mitigation measures have not been provided to minimize adverse environmental effects. Thus, the project as proposed does not meet the requirements of Section 30233 of the California Coastal Act regarding filling in wetlands,