

PROJECT STUDY REPORT (PERMANENT RESTORATION PROGRAM)

Project Initiation Document To Request Programming in the 2014 SHOPP

PROJECT LOCATION: In Mendocino County near Westport from 0.5 to 1.0 miles north of Blue Slide Gulch #10-166.

I have reviewed the right of way information contained in this Project Study Report (Permanent Restoration Program), and R/W Data Sheet attached hereto, and find the data to be complete, current, and accurate:

APPROVAL RECOMMENDED:


KAREN HAWKINS
Assistant Chief, North Region Right of Way

15 APR '14
Date

APPROVAL RECOMMENDED:


SCOTT LEE
District Program Advisor

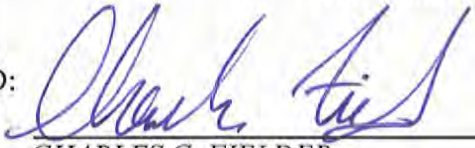
4/21/14
Date

APPROVAL RECOMMENDED:


FRANK DEMLING
Project Manager

4-14-2014
Date

APPROVED:


CHARLES C. FIELDER
District Director

April 21, 2014
DATE

This project initiation document has been prepared under the direction of the following Registered Civil Engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

Brian Simon
BRIAN SIMON, REGISTERED CIVIL ENGINEER
DISTRICT 1 - ADVANCE PLANNING

4/14/2014
DATE



1. INTRODUCTION & BACKGROUND

District 1, Advance Planning has prepared this Project Initiation Document (PID) for a landslide impacted portion of State Route (SR) 1 in Mendocino County. The subject location is commonly referred to as Westport Sink Landslide and is located about 1.3 miles south of Westport. See Attachment A for the Vicinity Map.

The Westport Sink Landslide project was initiated by a Damage Assessment Form (DAF), which was initially approved by the Federal Highway Administration (FHWA) in July of 2011 and had changes to cost approved in September of 2013 (Attachment H). This project is an FHWA Emergency Relief project that resulted from damage incurred from the CA11-3 March 2011 storm event. In order for this project to be programmed in the Permanent Restoration Program (PRP) of the State Highway Operation and Protection Program (SHOPP), the need to develop this Project Study Report (Permanent Restoration Program) was established by the HQ Program Manager. This PID is a product of an evolving expedited process and contains a level of development that is comparable to a Small Capital Value Project (SCVP) type of PID.

For the Westport Sink Landslide location, several alternatives were considered and discussion of the details on each of these alternatives is included in Section 6. Roadway reconstruction with retreat (partial) is the recommended alternative for programming and scheduling in the Permanent Restoration Program (20.XX.201.131) of the 2014 SHOPP. The table below provides a summary of the project and this report's recommendations.

Project Location & Limits	MEN-1, PM 75.7/76.2
Type of Facility	Conventional Highway
Number of Alternatives Considered	7 (Includes No Build)
Recommended Alternative (for programming & scheduling)	Roadway reconstruction with retreat (partial)
Construction Costs (2014)	\$12,900,000
Right of Way Costs (2014)	\$765,000
Total Cost (2014) of Recommended Alternative (for programming & scheduling only)	\$13,665,000
Funding Source	2014 SHOPP Permanent Restoration Program (20.XX.201.131)
Anticipated Environmental Determination/Document (Recommended Alternative)	CEQA: Initial Study (IS) with a Mitigated Negative Declaration (MND) NEPA: Categorical Exclusion (CE)

2. PURPOSE AND NEED

Purpose:

The purpose of the project is to reduce the annual maintenance expenditures, alleviate safety concerns from the public, and prevent complete loss of this highway segment which has no reasonable detour.

Need:

The Westport Sink Landslide frequently requires Field Maintenance to repair the roadway after the landslide mass mobilizes and damages or blocks the traveled way of this vital route. During normal rainfall years, the need for these repairs occurs an average of 3-5 times per year. During the 2010/11 season, Field Maintenance forces were called upon 17 times over a one month period.

The landslide causes discontinuities of the roadway surface in the form of sinks, cracks and shifts of both vertical and horizontal alignments. In addition to deformation of the roadway, slope failures along the outboard edge of the roadway have at times resulted in the loss of the structural section of the highway as well as clear recovery area. These impacts have been a source of concern and complaints from the travelling public, local businesses and Field Maintenance crews.

3. Available Information

Survey

Topographic Survey data from a 2011 LIDAR (Light Detection And Ranging) survey was available in this phase of the Westport Sink Landslide project development. Digital Terrain Model (DTM) information from this survey was used to calculate earthwork quantities, estimate depths to the landslide failure surface and establish new alignments.

Geotechnical

In early 2013, a Draft Preliminary Geotechnical Recommendation memo was prepared for the Westport Sink Landslide location. Based on the findings of that preliminary investigation, the slide is about 800' wide, extends 350' above the highway and 175-250' below the road surface, where the wave action of the ocean erodes the toe of the slope. The memo also estimates the volume of the slide mass to be in excess of 2 million cubic yards. The approximate limits of the landslide are delineated on the attached maps (Attachment B & C). These limits were determined from air photo analysis and field mapping.

Existing subsurface geotechnical data on the Westport Sink Landslide is limited to data collected from a two, relatively shallow (142' & 122') slope inclinometers (SI) that were installed within the paved area of the roadway prism in May 2010. SI data indicate one of the SI has sheared at a depth of 42' and the other is recording movement at 50' below the roadway. Based on field observations and SI data, the depth of the failure surface is estimated to be 100' below the roadway.

The 2013 Preliminary Geotechnical Recommendation memo also notes the slide tends to be most active during the spring when winter rains have elevated the ground water surface and saturated the landslide mass. The slide has been observed to move in pulses and increments of about 6" of lateral displacement have occurred. Most of the movement is below the highway and the slope uphill of the roadway has only recently had a direct impact on the facility when about 100 cubic yards of debris slid onto the traveled way.

Traffic Volumes

The 2012 Traffic Volumes on California State Highways publication was referenced to quantify the current traffic volume at about 850 AADT.

4. DEFICIENCY SUMMARY

The segment of MEN 1 where Westport Sink Landslide is located lies between the Pacific Ocean shoreline and a ridgeline of the California Coast Range. The portion of land that the highway was built upon is unstable, and depending on rainfall in a given season, can mobilize causing loss of clear recovery area, discontinuities in horizontal and vertical alignments as well as the pavement surface, and potentially could result in complete loss of this vital route.

Although there are several geometric deficiencies within the project limits, Section 1.4 of Design Information Bulletin 79-03 allows for "Permanent Restoration projects, triggered due to fire, earthquake, slides or storm damage, that do not include structures such as walls or bridges, may be restored to the "condition" that existed prior to the damage. " As such, any proposed improvements to the existing non-standard features within the Westport Sink project limits, such as horizontal curve radii, shoulder widths, super elevation rates and tapers, etc, will meet or exceed the degree to which the current highway meets standards. Reducing the vertical grade on the north end, where sight distances are reduced due to the grade has been identified as a deficiency which can be addressed within the project scope.

5. CORRIDOR AND SYSTEM COORDINATION

MEN 1 from PM 75.7 to PM 76.2 is classified as a conventional highway and will remain a 2-lane highway. The recommended concept Level of Service (LOS) for Route 1 is "E" and is expected to operate at or above this LOS through 2020. Widening to standard lane and shoulder widths as part of a rehabilitation strategy may not be prudent due to costs, environmental impacts, inconsistency with the Coastal Act and Local Coastal Plan and increased collisions due to widening where the alignment can't be improved.

Route 1 serves as the main street for a number of small coastal communities, and two incorporated cities on the Mendocino Coast (Point Arena and Fort Bragg). It carries high volumes of recreational and tourist traffic during the summer months.

The Coastal Zone Act of 1976 requires that "...Route 1 in the rural areas of the Coastal Zone remain a scenic two lane road." Route 1 from the Sonoma/Mendocino County line to north of Westport is within the Coastal Zone.

6. ALTERNATIVES

Summary of Alternatives Considered

The feasibility of the following alternatives are based on the previously described, limited information available in this phase of project development. The information with the most influence on the alternative assessment process is the geotechnical evaluation. Based on the limited geotechnical data, assumptions on the landslide characteristics have been made in developing the cost, scope and schedule of the project. The level of risk related to these assumptions will be reduced in the future as more definitive data is acquired through additional exploratory studies. Additionally, future studies may present other alternatives for consideration or possibly cause modifications to the recommended alternative for programming.

The set of alternatives considered below comprise some of the common strategies used to either stabilize highways impacted by landslides or provide a means of avoiding the landslide altogether. Application of any of these strategies is highly dependent on the characteristics of the landslide such as size (length, width, depth), location of slide relative to highway, topography, characteristics of the slide such as geologic formation, rate of movement, cause of slide, etc.

Feasible Alternatives

Roadway Reconstruction with Retreat (partial) – Recommended Alternative for Programming and Scheduling

Reconstruction of the roadway with a partially retreated alignment is a feasible alternative. The retreat alignment is described as being partial because the alignment proposes shifting the road up to 30' inland as opposed to a full retreat, which would involve bypassing the coastline altogether (Attachment K). Such a partial retreat project was done at this location in 1996-97. A layout and a typical cross section of the partially retreated alignment are included (Attachment B). A full retreat alignment alternative is described below.

With the proposed project scope, the existing non-standard features will be brought to standard to the maximum extent possible. Drainage infrastructure in the form of overside drains, inlet structures, trench drains and roadside swales are also proposed and the existing safety lights will be relocated. New signage (warning and chevron signs) on the curves are proposed as a means to enhancing driver awareness. Replacement of standard Metal Beam Guard Rail (MBGR) with MBGR (Special Detail) is proposed on the southernmost reversing curve within the project limits as a means of increasing shoulder area without reducing horizontal curvature. The cost estimate for this alternative's proposed work is \$13,665,000 and is included in Attachment D.

No Build Alternative

The no build alternative does not meet the purpose and need for the project.

Infeasible Alternatives

Tunnels

Tunnels can be used to avoid landslides, pass under water bodies and provide a shorter, less steep alignment than going over a mountain pass. Recently completed tunnel projects on the State Highway System (SHS) include the Devil's Slide Project (D4) and the Caldecott Tunnel, Fourth Bore Project (D4). The Devil's Slide project consists of two, 4,000 foot long, single lane tunnels and cost about \$439 million. These two tunnels were constructed to relocate State Route (SR) 1 outside of a landslide area, which on one occasion, forced a 158 day closure of this route segment. The Caldecott Tunnel project is comprised of a single bore, two lane, 3,300 foot long tunnel and cost about \$417 million. The purpose of the Caldecott Project was to provide congestion relief.

For the Westport Sink project, a tunnel was considered as a means to avoiding the landslide. Such a tunnel would need to be deep and long enough to avoid being located within the limits of the active landslide. One potential alignment and profile of such a tunnel is provided (Attachment C). Due to the length of this tunnel, emergency equipment (ventilation, fire suppression, back-up power, etc) would be required. Design to highway standards (lane and shoulder widths, cross slopes, vertical clearances etc) would also be required as shown in the typical cross sections provided. The construction costs for a tunnel was preliminarily estimated using a unit cost basis which was provided by Division of Engineering Services (DES). Based on this rate, a tunnel exceeds the cost of a partial retreat by \$155-205 million, making a tunnel alternative essentially infeasible.

Drainage wells

Drainage wells are vertical holes drilled in close proximity to each other. The bottoms of the shafts are bell shaped and overlap with the adjacent shafts. The shafts and the belled bottoms are backfilled with gravel material which allow ground water to be conveyed to the bottom of the shafts. Water in the wells is conveyed to the surface via directionally drilled steel pipes. The removal of the subsurface waters reduces the weight of the soil mass and pore water pressure which lessens the tendency of the soils to flow as a viscous media. Drainage wells are an effective strategy for shallow slides and at locations where the groundwater can be disposed of without negative impacts.

Drainage wells at the Westport landslide location are not considered viable due to depth of the slide and the lack of an outfall without negative impacts. Additionally, the subsurface water flow through the geological mass at this slide location is believed to be fracture controlled and dewatering would not be an effective way of stabilizing the slide. Therefore, drainage wells are not considered viable for this locations and no further analysis is warranted.

Retaining Walls

Soldier pile walls are a common type of retaining wall constructed as a means to stabilize a roadway prism within a landslide. Soldier pile walls are comprised of cast in drilled hole (CIDH) piles with wood members (lagging) in between the piles to retain the soils behind the wall. Typically, these walls are tied back to stable material behind the landslide failure surface using steel cables anchored into stable material with grout.

Due to the depth of the Westport Sink Landslide and the slide's proximity to the ocean, which continuously erodes the toe of the slide, retaining walls are not thought to be a feasible, stand alone alternative. However, walls could be installed within the limits of the slide with intention of stabilizing the roadway prism as opposed to retaining the entire slide. The walls installed along Last Chance Grade in Del Norte County are an example of where walls were constructed to support the roadway prism within a large landslide complex.

Viaducts

Construction of viaducts are not considered an appropriate method of avoiding impacts to the highway by this slide due to the characteristics of the slide mass. In particular, the width of the slide exceeds beyond the length a viaduct could be constructed without intermediate supports between the abutments. These supports would have to be located within the slide mass and would be exposed to lateral forces of the moving material. While intermediate piers can be shielded from these lateral forces by installing caissons which would serve as isolation casings around the piers, this slide location does not lend itself to this approach due to the size of the slide. Thus construction of a viaduct is not considered a viable alternative.

Full Inland Retreat

Full Inland Retreat was also considered as an alternative. This strategy also appears to have significant issues associated with it because of topographic, right of way, construction costs and environmental constraints.

Full inland retreat was evaluated on a precursory level to assess the viability of such an alternative. Such an alignment would entail relocating the highway inland over steep terrain and through what appears on aerial photographs to be heavily forested, undeveloped lands. An approximate alignment of a potential full inland retreat alternative is provided (Attachment K). A magnitude of cost for this alternative has been roughly calculated based on the length of the bypass and excavation limits, the

Materials Lab recommendations for structural section and right of way acquisition. Based on the magnitude of costs, this alternative is not recommended for programming and further development was not pursued.

7. OTHER CONSIDERATIONS

Right of Way

A Right of Way Data Sheet (Attachment E) was prepared for the Roadway Reconstruction with Retreat (partial) alternative. The purpose of which is to capture the anticipated costs associated with environmental permits and mitigation, utility relocation, temporary construction easements, and disposal sites.

Disposal Site: Due to the volume of roadway excavation and slide debris anticipated with the feasible alternative, a disposal site will be needed with this project. The California Coastal Commission will require any disposal site be located outside of coastal zone. Although a specific site location has not been identified at this time, the costs of such a site are captured in the estimate.

Temporary Construction Easements (TCE): As shown on the partial retreat and the tunnel layouts (Attachments B & C), TCEs will be required for the purposes of installing geotechnical data collection systems such as SI, geo-referenced slope monitors, tilt meters, etc. Costs for a TCE have been included in the Right of Way Data Sheet.

R/W Acquisition: The tunnel alternative will require R/W acquisition as shown on the attached layout (Attachment C).

Utility Relocation

Overhead utilities (power and phone) are located within the project limits. These facilities will be relocated at the owner's expense per the R/W Data Sheet. The infrastructure for and including the safety lights will be relocated at the state's expense and have been accounted for in the cost estimate.

Traffic Control

A Transportation Management Plan (TMP) has been prepared for the project and is included (Attachment I).

Materials

The Materials Lab has researched their records to determine a preliminary recommendation for a roadway structural section. Three strategies were provided and Strategy 2 was used as a basis for estimating construction costs. These are summarized in the table below.

MATERIALS RECOMMENDATION

Strategy	OGFC	HMA-A	AB (Class 2)	AS (Class 2)
1	0.10'	0.35'	0.55'	0.35'
2	0.10'	0.35'	0.75'	----
3	0.10'	0.75'	----	----

Staging

Space for staging of equipment and materials will be difficult due to the terrain. However, some of the vista areas within the project limits can be utilized for this purpose. Also, space created with lane

closure and one-way traffic control will provide additional staging area. Other areas outside of the project limits may be needed, but have not been identified.

Community Involvement

Community involvement was not sought during this phase of project development. In the future when the project nears the construction phase, notices to the public for travel delays will be required.

8. ENVIRONMENTAL DETERMINATION/DOCUMENT

The Preliminary Environmental Assessment Report (PEAR) (Attachment J) prepared for the recommended alternative, identifies the anticipated environmental documents as being an Initial Study (IS) with a Mitigated Negative Declaration (MND) and a Categorical Exclusion (CE) under CEQA and NEPA, respectively. The estimated time for Project Approval and Environmental Documentation (PA&ED) is 18-24 months. Cost for mitigation and permits have been included in the R/W Data Sheet.

Anticipated Permits & Approvals

Resource Agency	Agency Acronym	Type	Title
United States Army Corp of Engineers	USACE	Permit	Section 404 Nationwide Permit
Regional Water Quality Control Board	RWQCB	Certification	Section 401 Water Quality Certification
California Department of Fish & Wildlife	CDFW	Agreement	1602 Streambed Alteration Agreement
National Oceanic and Atmospheric Administration	NOAA	Consultation	Marine Mammal Protection Act
California Department of Fish & Wildlife	CDFW	Consultation	Threatened or Federal Endangered Species
United States Fish & Wildlife Service	USFWS	Consultation	Beach habitat impact
California Coastal Commission	CCC	Permit	Coastal Development Permit (CDP)

9. FUNDING/PROGRAMMING

Capital Outlay Support and Project Estimates (Source: Attachment G)

Fund Source	Fiscal Year Estimate							
	Prior	2013/14	2014/15	2015/16	2016/17	2017/18	Future	Total
20.10.201.131								
Component	In thousands of dollars (\$1,000)							
PA&ED Support		66	406	392	60			923
PS&E Support					940	379		1,319
Right-of-Way Support		1	8	8	15	9	28	69
Construction Support						180	1,440	1,620
Right of Way Capital						767		767
Construction Capital						14,706		14,706
Total Support & Capital								15,473

The support cost ratio is 25.41%

Schedule (Source: Attachment G)

Project Milestones		Scheduled Delivery Date
		(Month/Day/Year)
ID NEED	M000	11/12/2013
APPROVE PID	M010	4/11/2014
PROG PROJ	M015	5/1/2014
BEGIN ENVIRO	M020	5/1/2014
BEGIN PROJ	M040	5/1/2014
CIRC DPR & DED EXT	M120	3/1/2016
PA & ED	M200	9/1/2016
R/W REQTS	M224	6/1/2016
REGULAR R/W	M225	9/1/2016
PS&E TO DOE	M337	7/1/2017
PROJ PS&E	M380	9/15/2017
R/W CERT	M410	11/1/2017
RTL	M460	11/1/2017
HQ ADVERT	M480	1/2/2018
AWARD	M495	2/2/2018
APPROVE CONTRACT	M500	3/2/2018
CONTRACT ACCEPT	M600	11/1/2019
FINAL REPORT	M700	11/1/2020
END PROJ	M800	11/1/2023

RISKS

As previously stated, this PID is a product of an expedited and evolving process which will eventually replace the use of a DAF to initiate Caltrans projects. FHWA is expected to continue to use DAFs to approve federal funding of 130/131 projects. The expedited development schedule of this PID resulted in some Functional Units not providing formal recommendations. This introduces risks and to the maximum extent possible these were identified and included in the attached Risk Register (Attachment F).

Another source of risk to this project's cost, scope, and schedule are related to the future findings of geotechnical investigations in the next phase(s). These investigations may result in changes to the recommended alternative. The risk register also includes this source of accepted risk.

10. FHWA COORDINATION

This project is eligible for Emergency Relief (ER) and a Damage Assessment Form (Attachment H) was previously approved by the FHWA. Additional coordination with the FHWA is anticipated during future phases of this project's development.

11. PROJECT REVIEW

UNIT REVIEW	REVIEWER	DATE OF REVIEW
Constructability Review	Michael Lewis/James McGee	1st Level Circulation
District Maintenance	Royal McCarthy	1st Level Circulation
District Safety Review	Lena Ashley	1st Level Circulation
HQ Division of Design	Jim DeLuca/Heidi Sykes	1st Level Circulation
HQ Program Advisor	Gerald Kracher	1st Level Circulation
Advance Planning	Ralph Martinelli	12/20/2013

12. PROJECT PERSONNEL

NAME	TITLE	FUNCTIONAL UNIT	PHONE NUMBER
Frank Demling	Project Manager	Project Management	(707) 445-6554
Sherry Constancio	Major Damage Coord.	Storm Damage	(707) 445-6645
Ralph Martinelli	Advance Planning Chief	Advance Planning	(707) 441-3969
Brian Simon	Project Engineer	Advance Planning	(707) 441-3935
Adele Pommerenck	Environmental	Environmental	(530) 741-4215
Wesley Johnson	Transportation Engineer	Materials Lab	(707) 445-6386
Robert Close	Associate R/W Agent	Right of Way	(707) 441-5786
Danette Matcham	Associate R/W Agent	Right of Way	(707) 445-6429
Charlie Narwold	Senior Engineering Geologist	Geotechnical Design	(707) 445-6036
Jamie Lusk	Transportation Engineer	Traffic Operations	(707) 445-6419

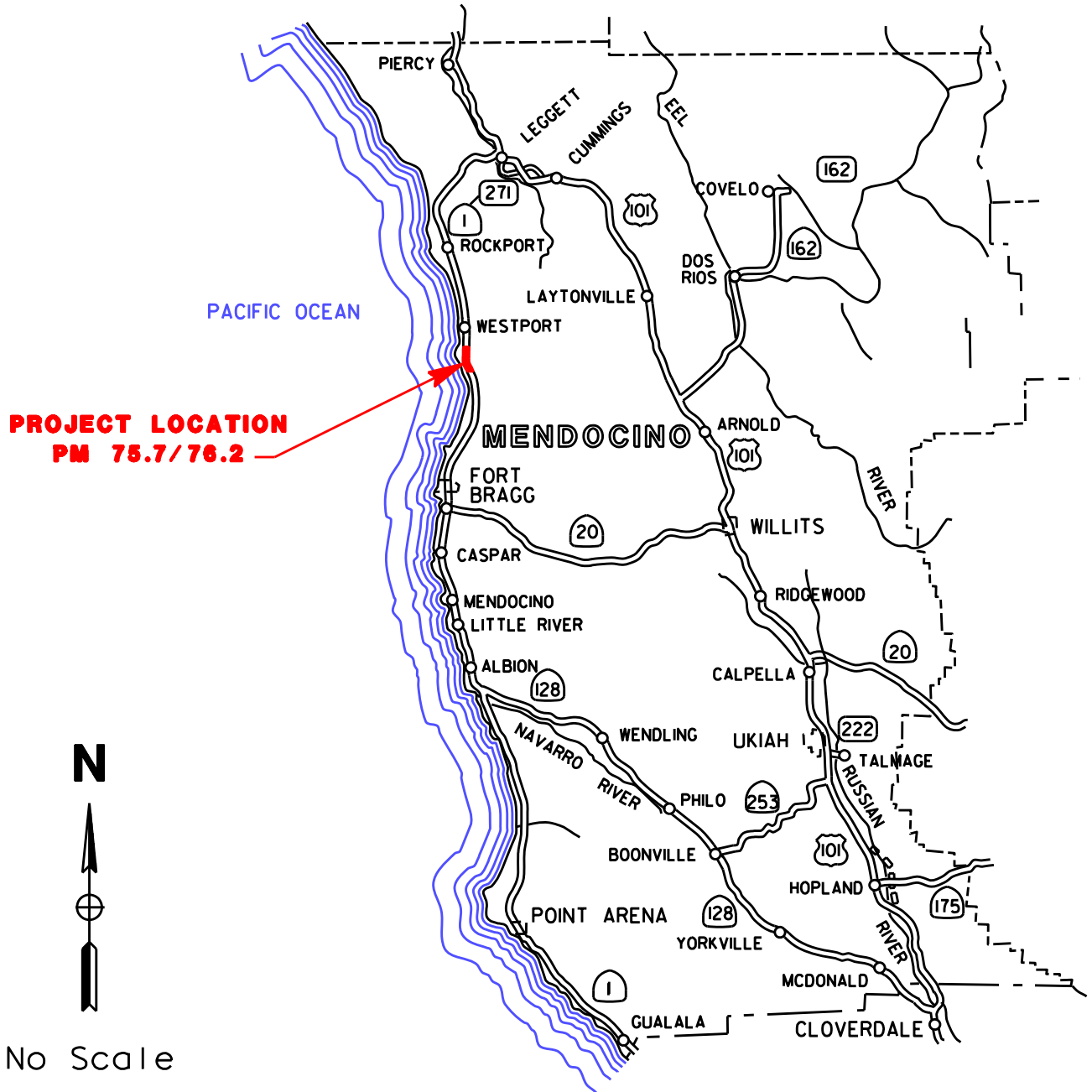
13. ATTACHMENTS

- A. Location Map
- B. Partial Retreat Alternative Layouts & Cross Sections
- C. Tunnel Alternative Layouts, Cross Sections & Profiles
- D. Cost Estimate
- E. Right of Way Data Sheet
- F. Risk Register
- G. Programming Sheet
- H. Damage Assessment Form (DAF)
- I. Transportation Management Plan
- J. Preliminary Environmental Assessment Report (PEAR)
- K. Full Retreat Alignment

ATTACHMENT A

LOCATION MAP

LOCATION MAP



**CA State Route Hwy 1 Westport Sink Landslide
Permanent Restoration Project**
01-MEN 1 - PM 75.7/76.2
01-OB480K (01 14000034)

ATTACHMENT B

PARTIAL RETREAT ALTERNATIVE LAYOUTS & CROSS SECTIONS

To Fort Bragg

To Westport

Chadbourne Gulch

Existing Overhead Utilities, Typical

Existing Culvert, Typical

Limits of Previous Roadway Retreat Cut, Typical

Right of Way

Westernmost R/W limit extends to shore

Active Slides

Larger Landslide Features

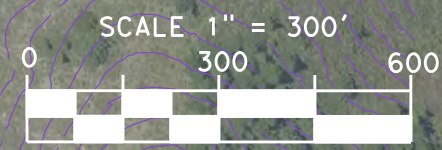
Limit of Temporary Construction Easement

PM 75.7

PM 76.2

LEGEND

-  Culvert
-  Overhead Utilities
-  Landslide Features
-  Active Landslide
-  R/W
-  1997 Cut Slope
-  Temp. Construction Easement
-  Contour Lines

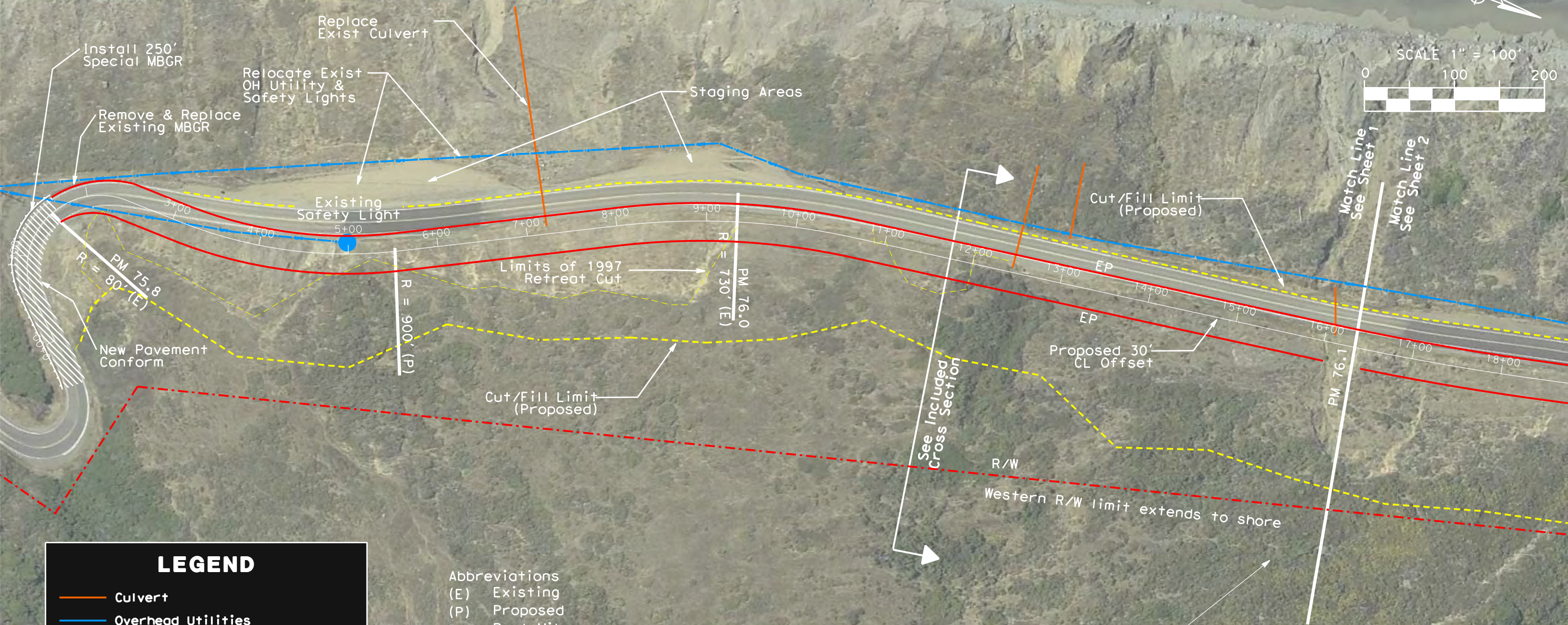
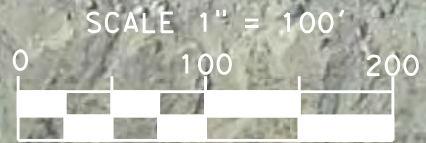


WESTPORT SINK LANDSLIDE
MEN 1 PM 75.7/76.2
 01-OB480K (01 1400 0034)
 March 2014

Approximate Ridgeline
 Peak Elev 840+/-

2013 slight retreat carlon 3.12.2014.dgn

PACIFIC OCEAN



LEGEND

- Culvert
- Overhead Utilities
- R/W
- Cut/Fill Limit (Proposed)
- Metal Beam Guardrail (MBGR)
- New Pavement Conform
- Edge of Pavement
- Safety Light

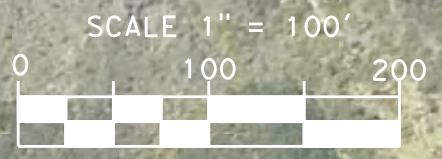
Abbreviations
 (E) Existing
 (P) Proposed
 PM Post Mile
 R Radius
 R/W Right of Way
 ESL Environmental Study Limit

ESL Area
 See 300 Scale Drawing
 For Limits

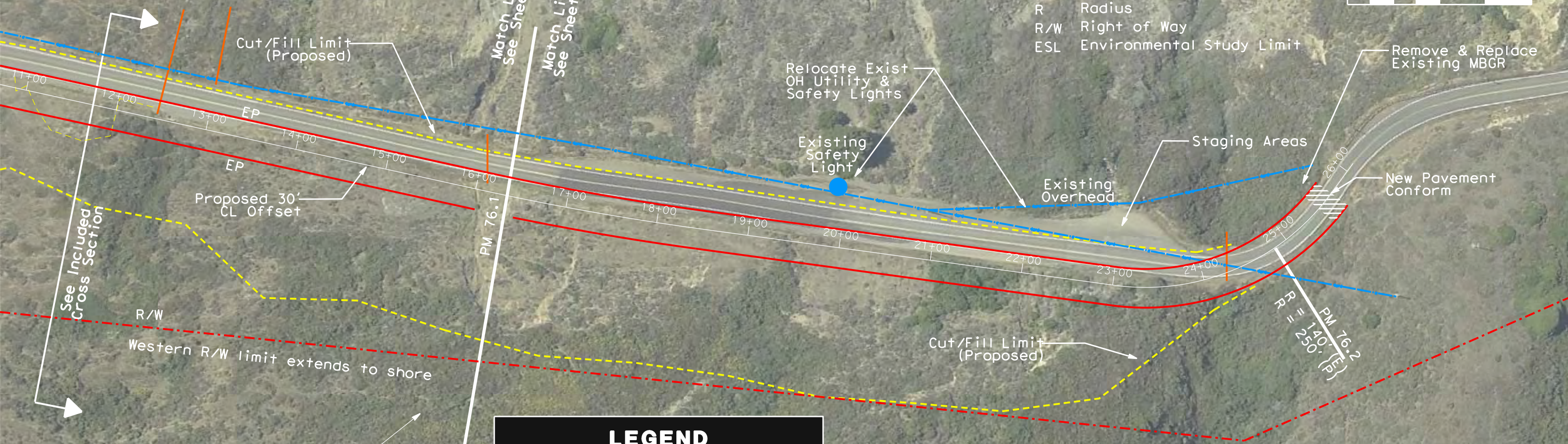
Partial Retreat Alternative
WESTPORT SINK LANDSLIDE
MEN 1 PM 75.7/76.2
 01-0B480K (01 1400 0034)
 March 2014

PACIFIC OCEAN

DESIGN STUDY ONLY



Abbreviations
 (E) Existing
 (P) Proposed
 PM Post Mile
 R Radius
 R/W Right of Way
 ESL Environmental Study Limit

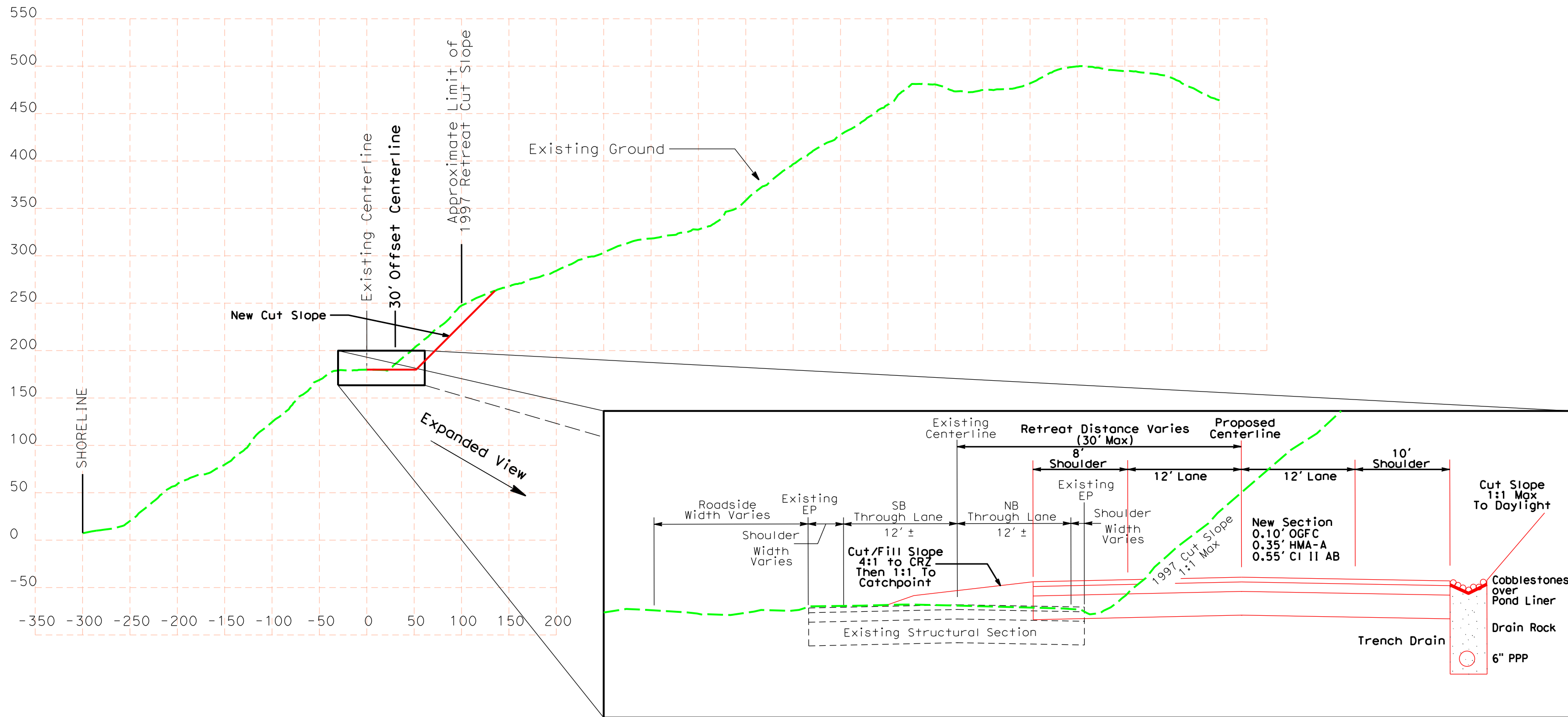


LEGEND

- Culvert
- Overhead Utilities
- R/W
- Cut/Fill Limit (Proposed)
- Metal Beam Guardrail (MBGR)
- New Pavement Conform
- Edge of Pavement
- Safety Light

ESL Area
See 300 Scale Drawing
For Limits

Partial Retreat Alternative
WESTPORT SINK LANDSLIDE
MEN 1 PM 75.7/76.2
 01-OB480K (01 1400 0034)
 March 2014



ATTACHMENT C

TUNNEL ALTERNATIVE LAYOUTS, CROSS SECTIONS & PROFILES

PACIFIC OCEAN

To Fort Bragg

To Westport

Remove Existing Culverts, Typical

Existing Overhead Utilities To Be Relocated, Typical

Obliterate Existing Roadway Return To Natural Slope Typical

SOUTH TUNNEL PORTAL

NORTH TUNNEL PORTAL

R/W Acquisition 12.9 AC +/-

TUNNEL ALIGNMENT

See Attached Cross Section

- Abbreviations
 (E) Existing
 (P) Proposed
 PM Post Mile
 R Radius
 R/W Right of Way
 ESL Environmental Study Limit

LEGEND

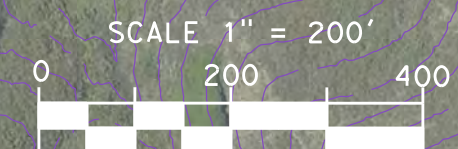
-  Culvert
-  Overhead Utilities
-  New R/W Limit
-  Contour Line
-  Tunnel Portal
-  Landslide Features
-  Temp. Construction Easement
-  Approx. Active Landslide Limit
-  Tunnel Roadway Alignment

New R/W Limit

Approximate Active Slide Limit

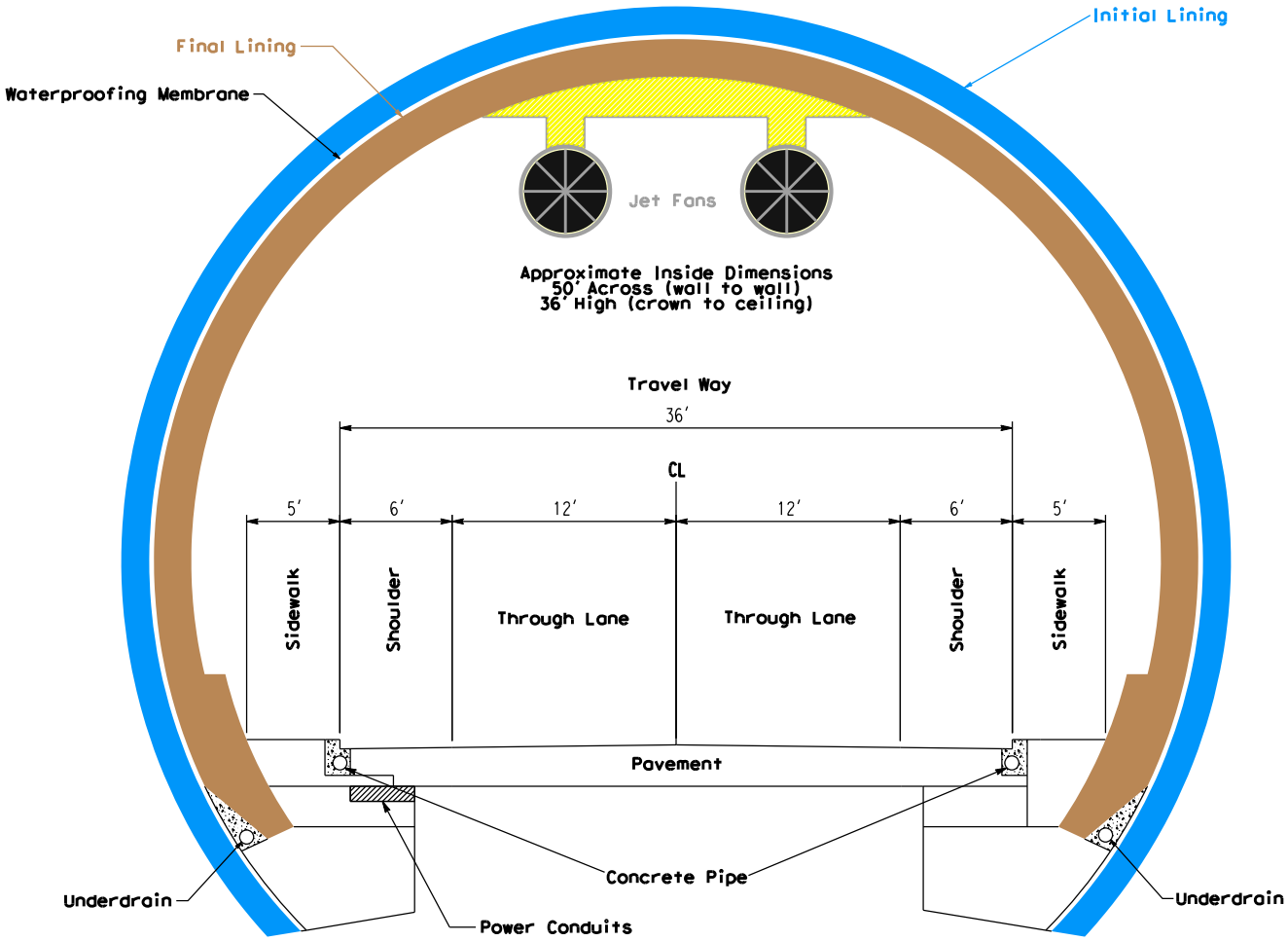
Larger Landslide Features

Temporary Construction Easement



Tunnel Alternative WESTPORT SINK LANDSLIDE

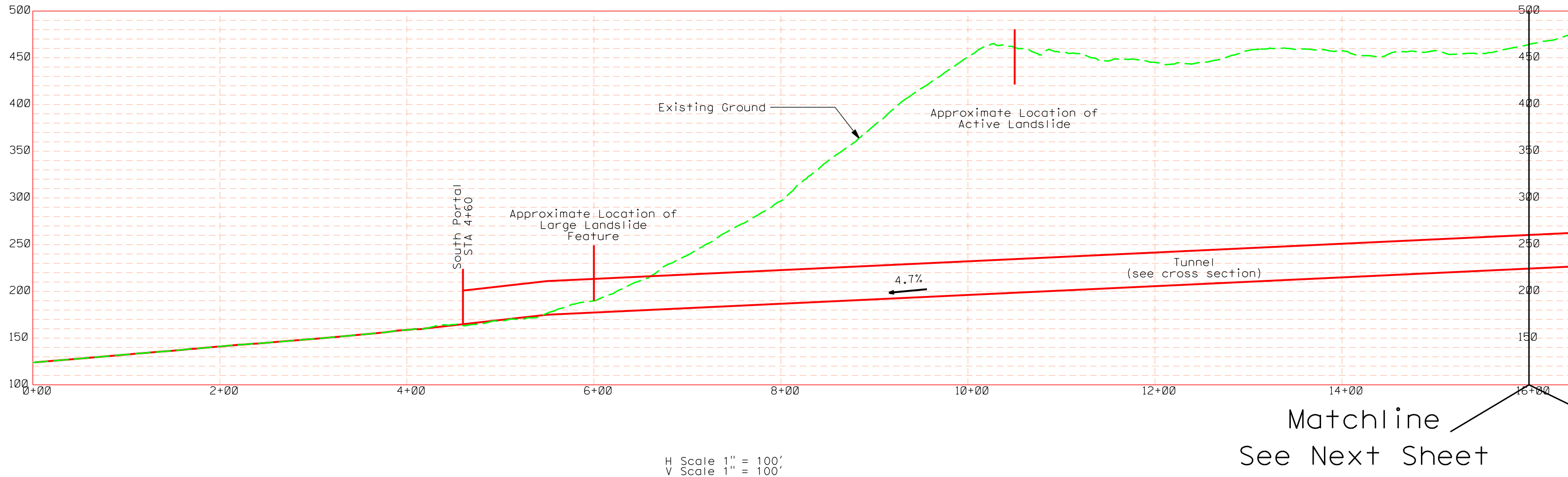
MEN 1 PM 75.7/76.2
 01-0B480K (01 1400 0034)
 February 2014

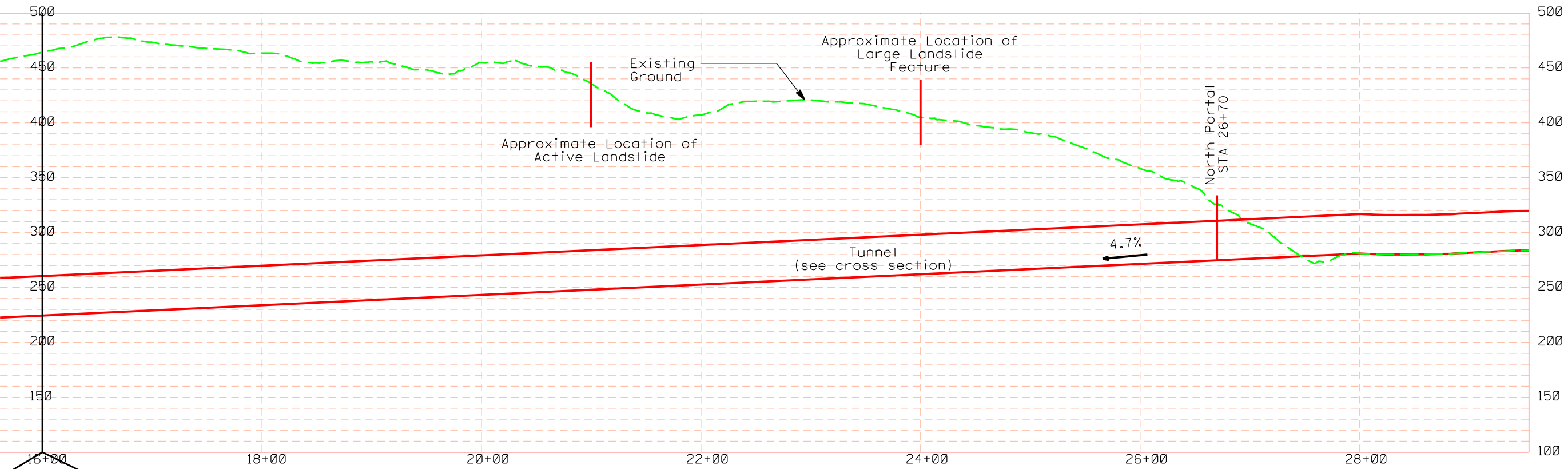


TYPICAL CROSS SECTION

**Tunnel Alternative
WESTPORT SINK LANDSLIDE
MEN 1 PM 75.7/76.2**

01-OB480K (01 1400 0034)
February 2014





Matchline
See Next Sheet

H Scale 1" = 100'
V Scale 1" = 100'

ATTACHMENT D

COST ESTIMATE



4-Mar-14

MEN 1 PM 75.7/76.2
Permanent Restoration Project
Westport Sink Landslide
EA 01-0B480K
EFIS 01 1400 0034

Westport Sink Landslide : Roadway Retreat (Partial)

SUMMARY OF PROJECT COST ESTIMATE

TOTAL ROADWAY ITEMS	\$12,900,000
TOTAL STRUCTURE ITEMS	\$0
SUBTOTAL CONSTRUCTION COSTS	\$12,900,000
TOTAL RIGHT OF WAY ITEMS	\$765,000
TOTAL PROJECT CAPITAL OUTLAY COSTS	\$13,665,000

Reviewed by District Program Manager [Signature] Date 4/21/14
Approved by Project Manager [Signature] Date 4-21-2014



4-Mar-14

MEN 1 PM 75.7/76.2
 Permanent Restoration Project
 Westport Sink Landslide
 EA 01-0B480K
 EFIS 01 1400 0034

I. ROADWAY ITEMS

Section 1 Earthwork	Quantity	Unit	Unit Price	Item Cost
Clearing and Grubbing	1	LS	\$20,000	\$20,000
Roadway Excavation (cut)	279,000	CY	\$20	\$5,580,000
Roadway Excavation (fill)	4,000	CY	\$20	\$80,000
Imported Material (Shoulder Backing)	280	TON	\$72	\$20,160
Subtotal Earthwork				\$5,700,160

Section 2 Pavement Structural Section	Quantity	Unit	Unit Price	Item Cost
Class 2 Aggregate Base	2,510	CY	\$60	\$150,600
Hot Mix Asphalt (Type A)	2,380	TONS	\$140	\$333,200
Open Graded Friction Course (OGFC)	570	TONS	\$165	\$94,050
Paint Binder (Tack Coat)	13	TONS	\$880	\$11,440
Cold Plane AC	100	SY	\$20	\$2,000
Lead Compliance Plan	1	LS	\$2,500	\$2,500
Price Fluctuations in (AC)	1	LS	\$13,200	\$13,200
Incentive for Asphalt Concrete (QC/QA) (4% of HMAc)	1	LS	\$13,400	\$13,400
Subtotal Pavement Structural Section				\$620,390

Section 3 Drainage	Quantity	Unit	Unit Price	Item Cost
24" CSP Culvert	1,020	LF	\$200	\$204,000
Remove Existing Drainage Inlet	6	EA	\$500	\$3,000
8" Perf Pipe Underdrain	2,500	LF	\$32	\$80,000
Remove Overside Drain CMP	3	EA	\$1,500	\$4,500
Install Inlet Structure	6	EA	\$2,000	\$12,000
1" Ditch Under Drain Rock	560	CY	\$150	\$84,000
6" Cobble Ditch Surface	350	CY	\$150	\$52,500
Ditch Liner	12,500	SF	\$1	\$12,500
Subtotal Drainage				\$452,500

Section 4 Specialty Items	Quantity	Unit	Unit Price	Item Cost
Progress Schedule (Critical Path)	1	LS	\$15,000	\$15,000
Erosion Control, Revegetation & Planting	1	LS	\$480,000	\$480,000
Prepare SWPPP + RQM	1	LS	\$10,000	\$10,000
Construction Site BMPs / Site Management (1.5%)	1	LS	\$190,000	\$190,000
Special Detail MBGR	269	LF	\$260	\$70,013
Remove Existing MBGR & Terminal End Section	125	LF	\$20	\$2,500
Install Terminal End Treatment	3	EA	\$2,700	\$8,100
Construction Site Management	1	LS	\$20,000	\$20,000
Subtotal Specialty Items				\$795,613

Section 5 Traffic Items	Quantity	Unit	Unit Price	Item Cost
Thermoplastic Striping (4")	10,000	LF	\$1.00	\$10,000
Temporary Railing (Type K)	2,500	LF	\$25	\$62,500
Relocate Safety Light	2	EA	\$25,000	\$50,000
Pavement Marker (Type D-Retroreflective)	210	EA	\$15	\$3,150
Install Roadside Sign	25	EA	\$500	\$12,500
Portable Changeable Message Sign (PCMS)	2	EA	\$5,000	\$10,000
Construction Area Signs	1	LS	\$10,000	\$10,000
Subtotal Traffic Items				\$158,150

SUBTOTAL \$7,726,813

Traffic Additions (Added in "TOTAL SECTIONS 1 thru 5)				
Traffic Control System	1	LS	(6% Item Subtotal)	\$464,000
Maintain Traffic	1	LS	(7% Item Subtotal)	\$542,000

SUBTOTAL

TOTAL SECTIONS 1 thru 5	\$8,732,813
--------------------------------	--------------------



4-Mar-14

MEN 1 PM 75.7/76.2
 Permanent Restoration Project
 Westport Sink Landslide
 EA 01-0B480K
 EFIS 01 1400 0034

Section 6 Minor Items		
Miscellaneous Construction (AC dike, MBGR markers, connections, and other misc items)	\$8,732,813 x (5%) =	\$436,641
	(Subtotal Sections 1 thru 5)	
TOTAL MINOR ITEMS		\$436,641

Section 7 Roadway Mobilization		
	\$9,169,453 x (10%) =	\$916,945
	(Subtotal Sections 1 thru 6)	
TOTAL ROADWAY MOBILIZATION		\$916,945

Section 8 Roadway Additions	Quantity	Unit	Unit Price	Item Cost
Supplemental Work				
			\$9,169,453 x (5%) =	\$458,473
			(Subtotal Sections 1 thru 6)	
Contingencies				
			\$9,169,453 x (25%) =	\$2,292,363
			(Subtotal Sections 1 thru 6)	
	\$ Per Hour	Hours Per Day	Work Days	
COZEEP setups @ \$100 per Hour Working 10 Hour Days	\$0	10	0	\$0
			Partial Project Working Days	
Construction Office		RE Office (\$2200/month for 24 months)		\$52,800
		(Subtotal Sections 1 thru 6)		\$9,169,453
TOTAL ROADWAY ADDITIONS (Sections 7 & 8)				\$3,720,581

TOTAL ROADWAY ITEMS \$12,890,100

CALL \$12,900,000

II. STRUCTURES ITEMS

Structure (Area Based)	0	SF	\$250	\$0
Remove Existing Structure	0	EA	\$100,000	\$0
Retaining Walls	0	SF	\$150	\$0
Retaining Wall Barrier w/ Bike Railing	0	LF	\$250	\$0
SUBTOTAL STRUCTURES ITEMS				\$0
(Sum of Total Cost for Structures)				

Railroad Related Costs:	NA			
SUBTOTAL RAILROAD ITEMS				\$0

TOTAL STRUCTURES ITEMS \$0

CALL \$0

III. RIGHT OF WAY ITEMS

A. Total Acquisition Cost	\$1,250
B. Appraisal Fees Estimate	\$0
C. Mitigation Acquisition & Credits	\$750,000
D. Project Development Permit Fees	\$13,000
E. Utility Relocation (State's Share)	\$0
F. Relocation Assistance (RAP)	\$0
G. Clearance/Demolition	\$0
H. Title and Escrow Fees	\$0
I. Total Estimated Right of Way Cost	\$0
J. Construction Contract Work	\$0

TOTAL RIGHT OF WAY ITEMS \$764,250

CALL \$765,000

Anticipated Date of Right of Way Certification February 1, 2016

ATTACHMENT E

RIGHT OF WAY DATA SHEET

MEMORANDUM

*Flex your power!
Be energy efficient!*

To: RALPH MARTINELLI
Design Engineer
Department of Transportation

Attention: BRIAN SIMON
Project Engineer

From: KAREN E. HAWKINS
North Region Right of Way Assistant Manager,
Project Delivery
Eureka/Redding

Date: December 20, 2013

File: 01-MEN-1-PM-75.7-76.2
EFIS No.: 01 1400 0034
EA: 0B480K

Alternate: Roadway Reconstruction with
Retreat (partial)


Subject: CURRENT ESTIMATED RIGHT OF WAY COSTS

Project Description: In Mendocino County near Westport from 0.5 to 1.0 miles north of Blue Slide Gulch #10-166

Alternate Description: Westport Sink Landslide

We have completed an estimate of the right of way costs for the above referenced project based on information received from you on November 26, 2013 .

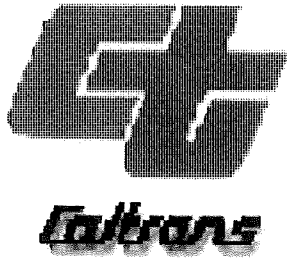
Right of Way Lead Time will require a minimum of 15 months after receipt of appraisal maps, utility conflict maps, environmental clearances (HMDD) and Certificate of Sufficiency (COS). A minimum of 12 months prior to certification will be required from submittal of the last map or revision.


KAREN E. HAWKINS
Assistant Chief
North Region Right of Way
EUREKA/REDDING

Attachments:
Right of Way Data Sheet

cc. Frank Demling

State of California - Department of Transportation
RIGHT OF WAY DATASHEET



EA: 08480K
PROJECT NO.: 01 1400 0034
LOCATION: 01-MEN-1-PM-75.7-76.2
Description: Repair Slide In Mendocino County near Westport from 0.5 to 1.0 miles north of Blue Slide Gulch #10-166

Alternate: Roadway Reconstruction with Retreat (partial)

DATE: 12/20/2013

Datasheet Type: Initial

1. Right of Way Cost Estimate:

	Current Value Future Use	Escalation Rate	Escalated Value
A. Total Acquisition Cost	\$1,250	5%	\$1,386
B. Appraisal Fees Estimate	\$0	N/A	\$0
C. Mitigation Acquisition & Credits	\$750,000	0%	\$750,000
D. Project Development Permit Fees	\$13,000	5%	\$14,415
Subtotal	\$764,250		\$765,801
E. Utility Relocation (State's Share)	\$0		\$0
(Owner's Share: \$320,000)			
F. Relocation Assistance (RAP)	\$0		\$0
G. Clearance/Demolition	\$0		\$0
H. Title & Escrow	\$0		\$0
I. Total Estimated Right of Way Cost	\$764,250		Rounded \$766,000 *
J. Construction Contract Work	\$0		

2. Current Date of Right of Way Certification February 1, 2016

3. Parcel Data:

Type	Dual/Appr	Utilities	Railroad
X <u>0</u>		U4 - 1 <u>2</u>	C&M Agreement <u>0</u>
A <u>1</u>		- 2 <u>0</u>	Service Contract <u>0</u>
B <u>0</u>		- 3 <u>0</u>	Easements <u>0</u>
C <u>0</u>	<u>0</u>	- 4 <u>0</u>	Rights of Entry <u>0</u>
D <u>0</u>	<u>0</u>	U5 - 7 <u>1</u>	Clauses <u>0</u>
RR <u>0</u>		- 8 <u>0</u>	
Total <u>1</u>		- 9 <u>2</u>	
Excess <u>0</u>			

Areas:

R/W	<u>N/A</u>
TCE	<u>39.5 AC</u>
Excess	<u>N/A</u>
Mitigation	<u>3 Ac.</u>

Mitigation

Impacts	<u>1</u>
Parcels	<u>0</u>
Credits	<u>0</u>

Misc. R/W Work

RAP Displaces	<u>N/A</u>
Clear/Demo	<u>N/A</u>
Permit to Enters	<u>N/A</u>
Condemnation	<u>0</u>
USA Involvement	<u>No</u>

4. Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.).

Very steep, vacant land, zoned RL-160 (Range Land)

5. Are any properties acquired for this project expected to be rented, leased, or sold?

Yes _____ No X

6. Are RAP displacements required?

Yes _____ No X

No. of single family N/A

No. of business/nonprofit N/A

No. of multi-family N/A

No. of farms N/A

Based on Draft/Final Relocation Impact Statement/Study dated _____ N/A

N/A Sufficient replacement housing will be available without last resort housing.

N/A Sufficient replacement housing will not be available without last resort housing.

7. Is there an effect on assessed valuation?

Yes _____ No X Not Significant _____

8. Are there any items of Construction Contract Work?

Yes _____ No X

There is no Construction Contract Work associated with the project.

9. Are utility facilities or rights of way affected?

Yes X No _____

Names of Utility Companies requiring verification only.

PG&E (Gas)

Names of Utility Companies requiring involvements.

PG&E (Electric), AT&T (Communication)

Additional information concerning Utility Involvement on this project.

12 Utility poles will be required to relocate. These poles carry AT&T (communication) and PG&E (electric) facilities. As additional information becomes available, this estimate may need to be revised.

10. Are railroad facilities or rights of way affected?

Yes _____ No Phase 4 Capital \$0

11. Are USA Lands or Rights Affected?

Yes _____ No Phase 4 Capital \$0

Agencies Involved:

US Forest Service _____

BLM _____

Army Corps of Engineers _____

National Parks _____

BIA _____

Vetrans Administration _____

US Fish & Wildlife _____

GSA _____

Rights or Permissions to acquire:

Easement _____

Special Use Permit _____ Courtesy Letter _____

Right of Way Grant _____

Cooperative Work Agreement _____ Cost Recovery _____

Mineral Agreement _____

Letter of Concurrence _____ Timber Sale _____

12. Is an RE Office required for the project?

Yes _____ No

Type of RE Office

Modular _____ Move In _____

13. Were any previously unidentified sites with hazardous waste and/or material found?

Yes _____ None Evident

14. Are there material borrow and/or disposal sites required?

No _____ Optional _____ Mandatory

Required for the project.

15. Are there potential relinquishments and/or abandonments?

Yes _____ No

16. Are there any existing and/or potential airspace sites?

Yes _____ No

17. What type of mitigation is required for the project?

It is too early for a true estimate of mitigation costs and details. The estimate is for \$750,000 . It was requested by the Project Engineer that we remove the contingency.

18. Is it anticipated that Caltrans will perform all Right of Way work?

Yes X No _____

19. Indicate the anticipated Right of Way schedule and lead time requirements.

Right of Way Lead Time will require a minimum of **15** months after we receive first appraisal maps, utility conflict maps, necessary environmental clearances and freeway agreements have been approved and obtained. Additionally a minimum of **12** months will be required after receiving the last appraisal map to Right of Way for certification.

20. Assumptions and limiting Conditions: (Check boxes that apply.)

- Mapping did not provide sufficient detail to determine the limits of the right of way required.
- Transportation facilities have not been sufficiently designed to determine the damages to any of the remainder parcels affected by the project.
- Additional right of way requirements are anticipated, but are not defined due to the preliminary nature of the early design requirements.
- Design will secure necessary encroachment permits from local agencies.
- Project permits are not required for the project.

- _____
- _____
- _____
- _____
- _____
- _____

Evaluation Prepared By:

Right of Way *Danette Matcham*
DANETTE MATCHAM

Date 1/9/14

Reviewed By
RW Project Coordinator *Robert Close*
ROBERT CLOSE

Date 1/9/14

I have personally reviewed this Right of Way Data Sheet and all supporting information. I certify that the probable Highest and Best Use, estimated values, escalation rates and assumptions are reasonable and proper, subject to the limiting conditions set forth, and I find this Data Sheet to be complete and current.

Leota K. Lovelace
LEOTA K. LOVELACE
Senior Right of Way Agent
Project Delivery Branch
Eureka

Karen E. Hawkins
KAREN E. HAWKINS
Assistant Chief
North Region Right of Way
Eureka/Redding

1/9/14
Date

1-9-14
Date

ATTACHMENT F

RISK REGISTER

LEVEL 2 - RISK REGISTER				Project Name:	Westport Sink Landslide			DIST- EA	01-0B480	Project Manager	Frank Demling					
Risk Identification							Risk Assessment					Risk Response				
Status	ID #	Type	Category	Title	Risk Statement	Current status/assumptions	Probability	Cost Impact	Cost Score	Time Impact	Time Score	Rationale	Strategy	Response Actions	Risk Owner	Updated
Active	1	Threat	DES	Climate Change	As a result of predicted increased intensity of Pacific winter storms, the toe of slide may erode at an accelerated rate which would lead to landslide(s) occurring below proposed retreat placing the stability of the roadway prism at risk.	The subject slide extends 175' - 200' below the roadway prism where the wave action of the ocean erodes the toe of the slope. If winter storms intensify, as predicted, the toe of the slide would erode and possibly cause landslide.	2-Low	4 -Moderate	8	4 -Moderate	8	Predictions of increased intensity of Pacific storms and increased force of wave action against toe of slide.	Accept	Monitor slide using wireless multiple position borehole extensometer's	0	1/0/1900
Active	2	Threat	DES	Slope stability	As a result of constructing the proposed roadway retreat, smaller landslides above the roadway, nested within the larger slide mass, may become unstable and require removal of additional slide material beyond calculated top of cut and possible beyond the State's R/W.	The slide is roughly 800' wide, extends 350' above the highway and the depth of the failure is estimated to be 100' below the roadway. The precise failure surface is unknown and although most of the slide movement is attributed to groundwater, most of the movement is below the highway and the slope uphill of the roadway has only recently directly impacted the facility.	2-Low	4 -Moderate	8	4 -Moderate	8	The slope uphill of the roadway has only recently directly impacted the facility when approximately 100 yards of debris slid onto the travelled way.	Accept	Design catchment area sufficient to keep any future slide debris from entering travelled way	0	1/0/1900
Active	3	Threat	R/W	Disposal Site	As a result of the limited capacity of existing approved disposal sites, there may not be sufficient capacity to dispose of material removed during construction which would lead to claims by contractor for increased trucking costs to dispose of material.	Approximately 300K CY of material would be removed during construction of the preferred alternative and the capacity of existing approved disposal sites at the time this project starts construction is unknown.	3-Moderate	4 -Moderate	12	4 -Moderate	12	Limited capacity of existing approved disposal sites	Accept	Secure additional disposal sites capable of accommodating volume of material generated by this project in advance of PA&ED.	0	1/0/1900
Active	4	Threat	Design	Typical Section	As a result of the preference of the County of Mendocino and the Coastal Commission to limit typical roadway sections to 12' lanes and 4' foot shoulders, delays in meeting PA&ED may occur which would lead to project delay due to redesign.	Current proposal is for 12' lanes and 8' paved shoulder left side (west) and 10' paved shoulder right side (east). Both the County of Mendocino and the Coastal Commission have historically been opposed to paved shoulders greater than 4' width.	3-Moderate	4 -Moderate	12	8 -High	24	Previous experience on past projects where the County of Mendocino and the Coastal Commission stated that they would not support projects that sought to construct paved shoulders greater than 4' width	Accept	Consultation with County of Mendocino Coastal Planner and CCC Coastal staff to demonstrate purpose and need of paved shoulders greater than 4' width or revise typical to 4' paved shoulder	0	1/0/1900

ATTACHMENT G

PROGRAMMING SHEET

PROGRAMMING SHEET

04/21/2014

EFIS ID: 0114000034 EA:01-0B480 County: MEN Route: 001 PostMile: 75.70/76.20

Project Manager: DEMLING, FRANK C	PM Assistant: LAW, REBECCA L	Project Nickname: Westport Sink Landslide
Project Description - Long: IN MENDOCINO COUNTY NEAR WESTPORT FROM 0.5 TO 1.0 MILES NORTH OF BLUE SLIDE GULCH #10-166		
Work Description - Long: REPAIR SLIDE		
PPNO: 4548	Program: Planning	RTP: No Funding Candidate: No PROGRAM YR: Working Days:
Open for Time: Yes	Subprogram: Major Damage (Permanent Restoration)	CT Status: APL RMP: RMP Date:
10 Yr SHOPP: No	AADD: Yes Dist Category: SHOPP K-PHASE	FED Aid Eligible:

MS	MS Description	MS Date
M000	ID NEED	11/12/2013 (A)
M010	APPROVE PID	04/11/2014 (T)
M015	PROG PROJ	05/01/2014 (T)
M020	BEGIN ENVIRO	05/01/2014 (T)
M040	BEGIN PROJ	05/01/2014 (T)
M120	CIRC DPR & DED EXT	03/01/2016 (T)
M200	PA & ED	09/01/2016 (T)
M224	R/W REQTS	06/01/2016 (T)
M225	REGULAR R/W	09/01/2016 (T)
M377	PS&E TO DOE	07/01/2017 (T)
M380	PROJ PS&E	09/15/2017 (T)
M410	R/W CERT	11/01/2017 (T)
M460	RTL	11/01/2017 (T)
M480	HQ ADVERT	01/02/2018 (T)
M495	AWARD	02/02/2018 (T)
M500	APPROVE CONTRACT	03/02/2018 (T)
M600	CONTRACT ACCEPT	11/01/2019 (T)
M700	FINAL REPORT	11/01/2020 (T)
M800	END PROJ	11/01/2023 (T)

	Amount \$k	EST Date
Roadway	12,900	02/26/14
Structures	0	02/26/14
Const Total	12,900	
ROW	767	
Total	13,667	

Env Doc: IS, CE (NEPA),

Fund Source	PA&ED	PS&E	ROW	CON	ROW Cap	CON CAP
4050201.131	0	0	0	0	0	0
Grand Total:	0	0	0	0	0	0

2018
CC Escalation %: 3.50%
CC Escalated \$: 14,706
ROW CAPITAL: 767
TOTAL: 15,473

Phase	PRIOR ACT \$	2014 ETC	2015 (1.50%) ETC	2016 (1.50%) ETC	2017 (1.50%) ETC	2018 (1.50%) ETC	Future (1.50%) ETC	Total	Sup/Cap
0	0	66	406	392	60	0	0	923	5.97%
1	0	0	0	0	940	379	0	1,319	8.52%
2	0	1	8	8	15	9	28	69	0.45%
3	0	0	0	0	0	180	1,440	1,620	10.47%
TOTAL SUPPORT COSTS								3,932	25.41%
TOTAL PROJECT COSTS								19,405	

Division	PRIOR ACT PYs	2014 ETC PYs	2015 ETC PYs	2016 ETC PYs	2017 ETC PYs	2018 ETC PYs	Future ETC PYs	Total PYs
01 ADMN	0.00	0.00	0.00	0.00	0.00	0.01	0.18	0.21
01 MTCE	0.00	0.00	0.01	0.02	0.01	0.02	0.12	0.18
01 PPM	0.00	0.02	0.09	0.09	0.12	0.10	0.33	0.76
01 TPLN	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.03
01 TROP	0.00	0.01	0.04	0.03	0.18	0.12	0.43	0.81
01 TOTALS:	0.00	0.02	0.15	0.14	0.34	0.25	1.06	1.97
02 MTCE	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.28
02 TOTALS:	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.28
03 CONS	0.00	0.00	0.02	0.01	0.04	0.63	2.73	3.43
03 ENVM	0.00	0.18	1.08	1.31	2.78	0.90	1.92	8.17
03 ESRV	0.00	0.01	0.05	0.03	0.13	0.37	0.08	0.66
03 PRJD	0.00	0.07	0.41	0.37	1.85	0.31	0.39	3.39
03 RWLS	0.00	0.01	0.03	0.03	0.34	0.11	0.12	0.64
03 SURV	0.00	0.04	0.23	0.17	0.03	0.31	1.10	1.89
03 TOTALS:	0.00	0.30	1.82	1.92	5.17	2.63	6.34	18.18
59 GS	0.00	0.06	0.38	0.25	0.41	0.01	0.00	1.12
59 METS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59 OE	0.00	0.00	0.01	0.01	0.01	0.21	0.00	0.25
59 TOTALS:	0.00	0.06	0.39	0.27	0.42	0.23	0.00	1.38
PROJECT TOTALS:	0.00	0.39	2.36	2.34	5.94	3.11	7.69	21.82

Comments:

ATTACHMENT H

DAMAGE ASSESSMENT FORM

U.S. Department of Transportation Federal Highway Administration- California Division- Title 23 Damage Assessment Form (DAF)		DAF No. CEP - CT01 - 0 4 2 - 1	Sheet # 1 of 6 Federal Project # EO ER - ()
Disaster No. CA 1 1 - 3 PR ER - ()		Applicant CALTRANS	County MENDOCINO
Location of Damage: Per Site <input checked="" type="checkbox"/> or <input type="checkbox"/> Per Mile		Incident Date (mm/dd/yyyy) 03/27/2011	Inspection
Name of Road/Bridge: Route 1		Federal-aid Highway? Y for yes, if no, ineligible for ER funds <input type="checkbox"/> Y	
PM Begin: 75.7 PM Length: 3,000.00 (in feet)		Map No 02F53	
PM End: 76.2		Functional Classification Type: Rural Minor Arterial	
Road/Bridge Data:	Bridge No n/a Type:	Route # 1	
Traveled Way: Width 2-12' lanes Type: PCC <input type="checkbox"/> AC <input checked="" type="checkbox"/> Gravel <input type="checkbox"/>		Forst Hwy? Y/N <input type="checkbox"/> N Interstate? Y/N <input type="checkbox"/> N	
Shoulder: Width var 2-10' Type: PCC <input type="checkbox"/> AC <input checked="" type="checkbox"/> Gravel <input type="checkbox"/>		Existing ADT: 900	
Description of Damage:	Landslide and Large Sink		

COST ESTIMATE				
Emergency Opening (EO)	Type of Repair	Description of Work	Cost Summary	
		EO- AGENCY FORCES CT Work Order #(s): 2420610, 2436393, 2443407, 2445795 EA(s):	AC Leveling of Scarps, Traffic Control and Signing	PE
		CE		
	EO- CONTRACT EO EA(s):		Construction	25,047
NOTE: Environmental documentation for EO is required. It is generally started after work has begun.			R/W	
			Subtotal Emergency Opening	\$25,047
Permanent Restoration (PR)	PR- CONSTRUCTION FA requires an approved PIF <input checked="" type="checkbox"/> Contract <input type="checkbox"/> FA PR EAs 01-0B480	Roadway retreat and deep under drain. Scope to be revised after geo-technical investigations are complete.	PE	2,260,000
			CE	1,800,000
			Construction	12,447,500
NOTE: PRIOR AUTHORIZATION (APPROVED E-76) IS REQUIRED TO PROCEED WITH PERMANENT RESTORATION R/W & CONSTRUCTION			R/W	
NOTE: Environmental clearance for permanent restoration is conducted through normal Federal-aid procedures			Subtotal Permanent Restoration	\$16,507,500
Eligible	Signature	Date	PE Total	\$2,260,000
<input type="checkbox"/> Yes <input type="checkbox"/> No	Local Agency (if applicable):		CE Total	\$1,800,000
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Caltrans: <i>David Morgan</i>	9/19/13	R/W Total	\$0
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	FHWA*: <i>Miguel A. Ramos</i>	9/23/13	Construction Total	\$12,472,547
TOTAL ESTIMATE				\$16,532,547

Agency sig. Name (print): N/A FHWA Sig. Name (print): Miguel A. Ramos
 CT signature Name (print): David Morgan DAF Prepared by (print): David Morgan

Original: Caltrans District Copies: FHWA, Division of Local Assistance(local roads), Federal Resources (state hwy), HQ Major Damage Engineer (state hwy)
 *Write "N/A" in FHWA signature block if the project has no Federal ER funding or Federal ER funding delegated to the State.
 FHWA Signature: REQUIRED for all Federal Funded State projects. REQUIRED for any Local Agency projects with 1) any BETTERMENT, 2) more than 2 ROW takes or 3) when paving is more than 50% of the Total Estimated Cost. Reminder: This DAF must be accompanied by photos of the damage.



ROADWAY RETREAT

SLOPE TREATMENT

U.S. Department of Transportation
Federal Highway Administration
California Division – Title 23
Damage Assessment Form (DAF)

DAF # CEP - CT01 - 0 4 2 - 1
Sheet # 4 of 6
Applicant
CALTRANS

Photos, Sketches and/or Narrative



Southern End of
Landslide is Sliding
Down to Ocean

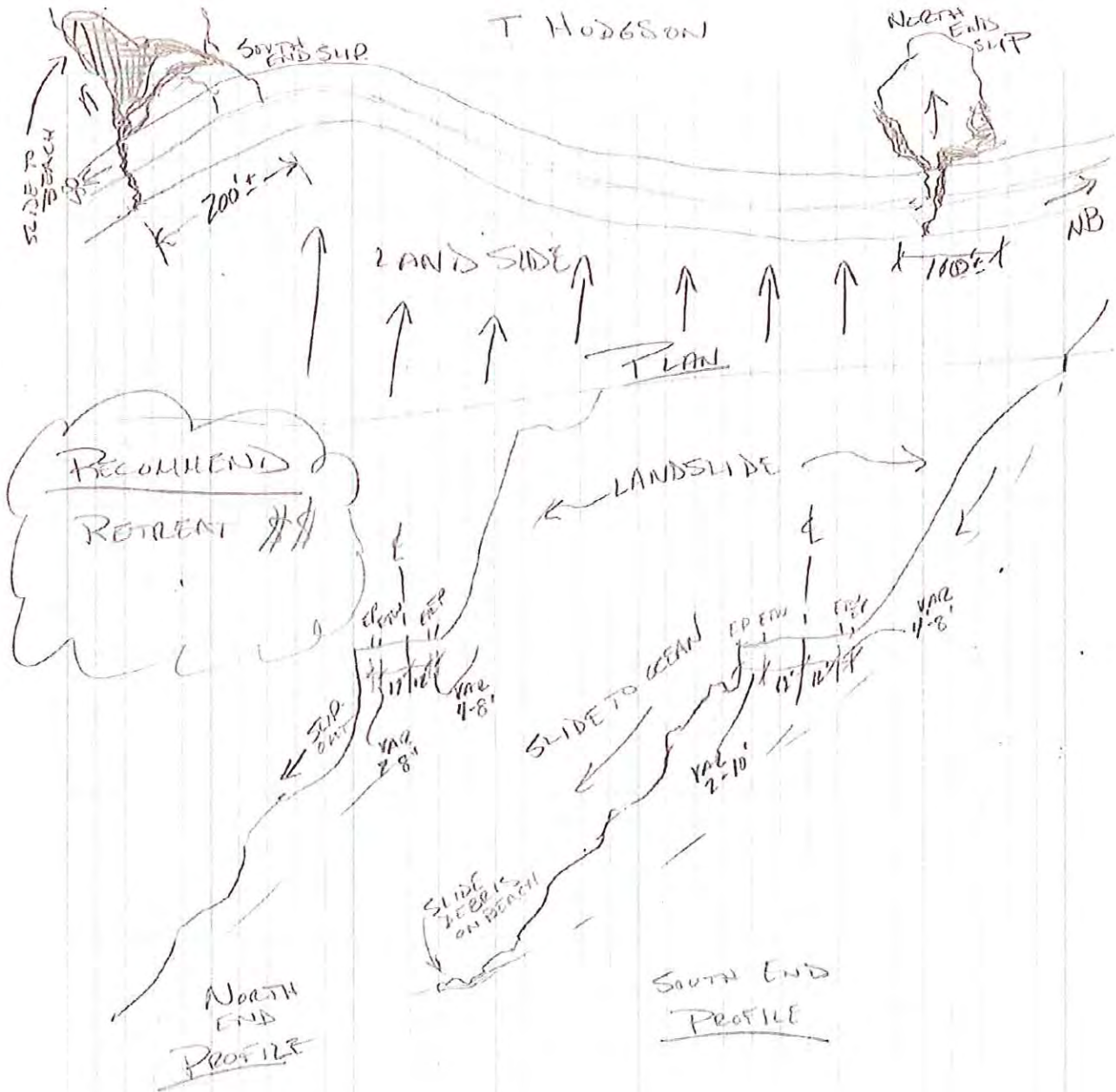


Northern End of
Landslide

U.S. Department of Transportation
Federal Highway Administration
California Division - Title 23
Damage Assessment Form (DAF)

DAF # CEP - CT01 - 042-1
Sheet # 5 of 6
Applicant
CALTRANS

Photos, Sketches and/or Narrative



Wono	Unit	Activity Description	Activity	Unit ID	From Mile	To Mile			
2420610	682	OVERLAY/LEVELING FLEX LANE	A10060	01-MEN-001	75.8	76.18			
Workdate	Item IDs	Item Description	Usage	Cost	Workdate	Item IDs	Item Description	Usage	Cost
21-Mar-11	0338719	DUMP BODY W/PLOW & SPREADER	8	\$ 52.88	5-Apr-11	104992	CHRISTOPHER PANG	1	\$ 81.12
	104992	CHRISTOPHER PANG	8	\$ 324.47		1112005	CARGO BODY W/O HOIST W/PLOW D:	1	\$ 7.78
	106419	DANNY FIGUEIREDO	8	\$ 356.28		3576627	GENERATOR 5KW W/FLOOD LIGHT	17	\$ 14.96
	1098380	UTILITY BODY W/ PLOW DIESEL	8	\$ 22.40	9-Apr-11	1112005	CARGO BODY W/O HOIST W/PLOW D:	4	\$ 31.12
	1098382	UTILITY BODY W/ PLOW DIESEL	8	\$ 22.40		131709	KEVIN SMITH	4	\$ 142.59
	1112005	CARGO BODY W/O HOIST W/PLOW D:	8	\$ 31.12		132545	TIMOTHY LILJEBERG	4	\$ 142.59
	132545	TIMOTHY LILJEBERG	8	\$ 296.88	10-Apr-11	1112005	CARGO BODY W/O HOIST W/PLOW D:	4	\$ 15.56
	133780	BRANDON MCGREGOR	8	\$ 235.76		133780	BRANDON MCGREGOR	4	\$ 113.23
	133812	RICKY RODRIGUES	8	\$ 296.89		133812	RICKY RODRIGUES	4	\$ 142.59
	4185799	LOADER FRONT END 1-1/2 C.Y.	2	\$ 11.40	13-Apr-11	1112005	CARGO BODY W/O HOIST W/PLOW D:	2	\$ 7.78
	5610-0388	COLD MIX ASPHALT	4	\$ 331.52		131709	KEVIN SMITH	2	\$ 74.22
	7004218	CONE BODY	8	\$ 26.72		133812	RICKY RODRIGUES	2	\$ 74.22
27-Mar-11	0336583	DUMP BODY W/PLOW & SPREADER	4	\$ 26.44					
	0497564	DUMP BODY	4	\$ 28.56	2445795	682	OVERLAY/LEVELING FLEX LANE		
	104992	CHRISTOPHER PANG	4	\$ 155.83	4-Apr-11	0497564	DUMP BODY	5	\$ 35.70
	105773	AARON CHRISTIAN	4	\$ 171.11		104992	CHRISTOPHER PANG	5	\$ 202.79
	1098380	UTILITY BODY W/ PLOW DIESEL	4	\$ 11.20		1098380	UTILITY BODY W/ PLOW DIESEL	5	\$ 14.00
	1112005	CARGO BODY W/O HOIST W/PLOW D:	4	\$ 15.56		1112005	CARGO BODY W/O HOIST W/PLOW D:	5	\$ 19.45
	132545	TIMOTHY LILJEBERG	4	\$ 142.59		131709	KEVIN SMITH	5	\$ 185.55
	133363	JEFFREY LEROY	4	\$ 211.90		133780	BRANDON MCGREGOR	5	\$ 147.35
	133812	RICKY RODRIGUES	4	\$ 142.59		133811	TIMOTHY PARKER	5	\$ 170.54
	4185799	LOADER FRONT END 1-1/2 C.Y.	4	\$ 22.80		133812	RICKY RODRIGUES	5	\$ 185.55
	5610-0388	COLD MIX ASPHALT	4	\$ 331.52		5610-0240	ASPHALT EMULSIFIER RS-1	35	\$ 227.50
	5610-0388	COLD MIX ASPHALT	10	\$ 828.80		5610-0388	COLD MIX ASPHALT	5	\$ 414.40
	6026714	TRAILER EQUIPMENT 13 TO 20 TON	4	\$ 7.52		7004218	CONE BODY	5	\$ 16.70
	7004218	CONE BODY	4	\$ 13.36	8-Apr-11	0338719	DUMP BODY W/PLOW & SPREADER	8	\$ 52.88
30-Mar-11	0338719	DUMP BODY W/PLOW & SPREADER	8	\$ 52.88		0497564	DUMP BODY	8	\$ 57.12
	0497564	DUMP BODY	8	\$ 57.12		104992	CHRISTOPHER PANG	8	\$ 324.47
	104992	CHRISTOPHER PANG	8	\$ 324.47		130202	ERIC COOPER	8	\$ 324.47
	106419	DANNY FIGUEIREDO	8	\$ 356.28		131709	KEVIN SMITH	8	\$ 296.88
	1098380	UTILITY BODY W/ PLOW DIESEL	8	\$ 22.40		133780	BRANDON MCGREGOR	8	\$ 235.75
	1098382	UTILITY BODY W/ PLOW DIESEL	8	\$ 22.40		133812	RICKY RODRIGUES	8	\$ 296.89
	132545	TIMOTHY LILJEBERG	8	\$ 296.88		4966637	ROLLER TANDEM 5 T - 8 T DIESEL	8	\$ 31.12
	133780	BRANDON MCGREGOR	8	\$ 235.75		5489196	SIGN CMS HYBRID TRAILER MTD	8	\$ 24.96
	133811	TIMOTHY PARKER	8	\$ 272.86		5610-0240	ASPHALT EMULSIFIER RS-1	40	\$ 260.00
	133812	RICKY RODRIGUES	8	\$ 296.88		5610-0388	COLD MIX ASPHALT	24	\$ 1,989.12
	4966637	ROLLER TANDEM 5 T - 8 T DIESEL	8	\$ 31.12		6024764	TRAILER ROLLER EQUIPMENT	8	\$ 10.40
	5610-0388	COLD MIX ASPHALT	20	\$ 1,657.60		7004218	CONE BODY	8	\$ 26.72
	6024764	TRAILER ROLLER EQUIPMENT	8	\$ 10.40		7005156	SWEEPER ROTARY TOWED SELF-PO	8	\$ 13.52
	7004218	CONE BODY	8	\$ 26.72	18-Apr-11	0336582	DUMP BODY W/PLOW & SPREADER	5	\$ 33.05
	7005661	GRADER-TANDEM DRIVE 130	8	\$ 43.60		104992	CHRISTOPHER PANG	5	\$ 202.79
						106419	DANNY FIGUEIREDO	5	\$ 222.67
2436393	682	EMERGENCY TRAFFIC CONTROL				1098380	UTILITY BODY W/ PLOW DIESEL	5	\$ 14.00
29-Mar-11	0338719	DUMP BODY W/PLOW & SPREADER	8	\$ 52.88		1098382	UTILITY BODY W/ PLOW DIESEL	5	\$ 14.00
	104992	CHRISTOPHER PANG	8	\$ 324.47		131709	KEVIN SMITH	5	\$ 185.55
	106419	DANNY FIGUEIREDO	8	\$ 356.28		132545	TIMOTHY LILJEBERG	5	\$ 185.55
	1098380	UTILITY BODY W/ PLOW DIESEL	8	\$ 22.40		133780	BRANDON MCGREGOR	5	\$ 147.35
	1098382	UTILITY BODY W/ PLOW DIESEL	8	\$ 22.40		133811	TIMOTHY PARKER	5	\$ 170.54
	1112005	CARGO BODY W/O HOIST W/PLOW D:	8	\$ 31.12		133812	RICKY RODRIGUES	5	\$ 185.55
	132545	TIMOTHY LILJEBERG	8	\$ 296.88		5610-0240	ASPHALT EMULSIFIER RS-1	40	\$ 260.00
	133780	BRANDON MCGREGOR	8	\$ 235.75		5610-0388	COLD MIX ASPHALT	4	\$ 331.52
	133811	TIMOTHY PARKER	8	\$ 272.86		7004218	CONE BODY	5	\$ 16.70
	133812	RICKY RODRIGUES	8	\$ 296.88	21-Apr-11	0336582	DUMP BODY W/PLOW & SPREADER	10	\$ 66.10
31-Mar-11	106419	DANNY FIGUEIREDO	4	\$ 171.11		0497564	DUMP BODY	10	\$ 71.40
	1112005	CARGO BODY W/O HOIST W/PLOW D:	2	\$ 7.78		104992	CHRISTOPHER PANG	10	\$ 405.58
						106419	DANNY FIGUEIREDO	10	\$ 445.35
2443407	682	EMERGENCY TRAFFIC CONTROL				1098380	UTILITY BODY W/ PLOW DIESEL	10	\$ 28.00
1-Apr-11	1112005	CARGO BODY W/O HOIST W/PLOW D:	1	\$ 3.89		1098382	UTILITY BODY W/ PLOW DIESEL	10	\$ 28.00
	1112005	CARGO BODY W/O HOIST W/PLOW D:	2	\$ 7.78		131709	KEVIN SMITH	10	\$ 371.11
	133780	BRANDON MCGREGOR	1	\$ 29.47		132545	TIMOTHY LILJEBERG	10	\$ 371.11
	133780	BRANDON MCGREGOR	2	\$ 58.94		133780	BRANDON MCGREGOR	10	\$ 294.69
	133811	TIMOTHY PARKER	2	\$ 68.21		133811	TIMOTHY PARKER	10	\$ 341.07
	3576627	GENERATOR 5KW W/FLOOD LIGHT	17	\$ 14.96		133812	RICKY RODRIGUES	10	\$ 371.11
2-Apr-11	106419	DANNY FIGUEIREDO	4	\$ 171.11		4185799	LOADER FRONT END 1-1/2 C.Y.	10	\$ 57.00
	1112005	CARGO BODY W/O HOIST W/PLOW D:	4	\$ 31.12		4966637	ROLLER TANDEM 5 T - 8 T DIESEL	10	\$ 38.90
	132545	TIMOTHY LILJEBERG	4	\$ 142.59		5610-0240	ASPHALT EMULSIFIER RS-1	30.57	\$ 198.71
	3576627	GENERATOR 5KW W/FLOOD LIGHT	17	\$ 14.96		5610-0388	COLD MIX ASPHALT	30	\$ 2,486.40
3-Apr-11	1112005	CARGO BODY W/O HOIST W/PLOW D:	4	\$ 31.12		6024764	TRAILER ROLLER EQUIPMENT	10	\$ 13.00
	133780	BRANDON MCGREGOR	4	\$ 113.23		7004218	CONE BODY	10	\$ 33.40
	133811	TIMOTHY PARKER	4	\$ 131.05		7005661	GRADER-TANDEM DRIVE 130	10	\$ 54.50
	3576627	GENERATOR 5KW W/FLOOD LIGHT	17	\$ 14.96					
4-Apr-11	1112005	CARGO BODY W/O HOIST W/PLOW D:	3	\$ 11.67					
	131709	KEVIN SMITH	3	\$ 111.33					
	133811	TIMOTHY PARKER	3	\$ 102.32					
	3576627	GENERATOR 5KW W/FLOOD LIGHT	17	\$ 14.96					
								Total	\$ 25,046.62

ATTACHMENT I

TRANSPORTATION MANAGEMENT PLAN

TRANSPORTATION MANAGEMENT PLAN

To: BRIAN SIMON
Project Engineer
District 1 Advance Planning

Date: November 21, 2013
File: MEN-1 PM 75.5/76.0
EA: 01-0B480K
EFIS: 0114000034
Westport Slide

From: SHERI RODRIGUEZ, Chief (Acting)
District 1 Office of Traffic Operations

Project Information

Location: In Mendocino County, near Westport, from 0.5 miles to 1.2 miles north of the Blue Side Gulch Bridge (#10-0166).

Type of Work: Reconstruct roadway by retreat.

Anticipated Traffic Control: Reversing traffic control.
Shoulder closure.

Estimated Maximum Delay: 10 minutes.

Peak Hour Traffic Volumes: 200 vph.

Lane Requirement Charts

Included: Yes

Closure During Night Hours: Probable.

Number of Working Days: TBD

PID Approval Date: January 3, 2014

RTL Date: April 1, 2016

District Traffic Manager/ TMP

Manager: Sheri Rodriguez (707) 445-6535

TMP Coordinator: Paul Hailey (707) 445-5213

Anticipated Traffic Impacts

Significant traffic impacts are not anticipated provided that the following recommendations and requirements are incorporated into the project. In conformance with Deputy Directive-60, District Lane Closure Review Committee approval is not required for projects with anticipated traffic delay less than 30 minutes.

Requirement

A request for an updated Transportation Management Plan (TMP) shall be made during the design phase. If a temporary signal system is the desired way to provide traffic control, please consult Traffic Electrical. Once Traffic Electrical has provided concurrence for the use of a temporary signal system, it will then be included in future updates to this TMP.

Hours of Work

- See Chart no. 1 “Conventional Highway Lane Requirements” for work hour restrictions.
- See Chart no. 2 “Lane Closure Restrictions for Designated Legal Holidays” for work day restrictions.

Public Notice

- Upon receipt of notice that the roadway width, including paved shoulder, for a direction of travel will be narrowed to less than 16 ft, the Resident Engineer shall promptly notify the HQ Construction Liaison Jay Horton at (916) 322-4957.
- The District Public Information Office, (707) 445-6444, shall be contacted two weeks in advance of the start of construction.
- Any emergency service agency whose ability to respond to incidents will be affected by any lane closure must be notified prior to that closure.
- Impacts to tribal land during the construction phase shall be coordinated with the affected local tribal government and other entities during the design phase. Contact Kathleen Sartorius, District 1 Native American Liaison, (707) 441-5815.
- The Resident Engineer shall provide information to residents and businesses before and during project work that may represent a negative impact on commerce and travel surrounding the zone of construction.
- Notify the Resident Engineer at least 5 days in advance of excavation work in the vicinity of possible Caltrans electrical facilities. The Resident Engineer shall contact the Maintenance-Electrical Supervisor at (707) 463-4713 to locate existing Caltrans underground electrical facilities.

Traffic Control

- One lane closure is permitted within the project limits.
- The W11-1 vehicular traffic sign (bicycle symbol) and the W16-1p supplemental plaque (SHARE THE ROAD) shall be placed, in each direction of travel, prior to the construction zone.
- Reversing traffic control shall be in conformance with the Caltrans Standard Plan T-13, "TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON TWO LANE CONVENTIONAL HIGHWAYS."
 - A minimum of 11 ft of paved roadway shall be open for use by public traffic.
 - The maximum length of a reversing traffic control closure is 0.5 miles.
 - Supplemental funds shall be provided in the event the Resident Engineer decides to utilize advance flaggers. All flaggers shall have continuous radio contact with personnel in the work area.
- Work that occurs within 6 ft of the edge of traveled way, on a conventional highway, shall require a shoulder closure. Close the shoulder area with cones or portable delineators. Place the cones or delineators on a taper in advance of work, parked vehicles or equipment and along the edge of the traveled way at 25-foot intervals to a point not less than 25 feet past the last vehicle or piece of equipment. Use at least 9 cones or delineators for the taper. Use a W20-1, "Road Work Ahead," W21-5b, "Right/Left Shoulder Closed Ahead," or C24(CA), "Shoulder Work Ahead," sign mounted on a crashworthy, portable sign support with flags. The sign shall be at least 48 by 48 inches in size.
- A minimum of one PCMS in advance of both ends of the construction site shall be required to notify the public of the closures related to this project.
 - Start displaying the message on the PCMS 15 minutes before closing the lane.
- This section of Highway 1 is part of the Pacific Coast Bike Route. Bicyclists shall be accommodated through the work zone. Signage shall be used to alert vehicles of the possible presence of bicyclists. During reversing traffic control, bicyclists shall be instructed to join the vehicle queue. During reversing traffic control using a temporary signal system, all red timing shall be adjusted to facilitate bicyclists through the lane closure.

- If persons with disabilities (e.g. hearing, visual, or mobility) are found to use this facility, the temporary traffic control measures mentioned in the January 13, 2012 CA MUTCD Chapter 6D (pp. 1039-1044) shall be incorporated to accommodate disabled pedestrians through the work zone.
- COZEEP is not recommended for this project. According to the CA DOT Construction Manual Section 2-215A (9), lane closures on two-lane highways do not require COZEEP.
- The following table lists projects that are anticipated to have closures near this project and shall be used to assess cumulative corridor delay.

Contract No.	Co-Rte-PM	Location	Type of Work
01-0C6704	MEN-1-62.2/70.4	Near Fort Bragg	Reconstruct Roadway
01-434804	MEN-1-48.05/62.12	In and Near Fort Bragg	Upgrade Bridge Rails

Contingency Plan

The contractor shall prepare a contingency plan for reopening closures to public traffic. The Contractor shall submit the contingency plan for a given operation to the Engineer within one working day of the Engineer's request. Contingencies for unanticipated delays, emergencies, etc. shall be coordinated between the RE and the Contractor.

Approval

Approved by: _____

As Signed By SMR

Approved by: _____

District Traffic/ TMP Manager

SMR/jnl

CC: 1)SMRodriguez, 2)JCandalot
RMartinelli
FDemling
JMcGee
Traffic Safety
PIO

Chart no. 1 Conventional Highway Lane Requirements																													
County: Mendocino							Route/Direction: 1 NB/SB							PM: 75.5/76.0															
Closure limits:																													
From hour to hour																													
24 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24																													
Mondays through Thursdays							R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		
Fridays							R	R	R	R	R	R	R	R	R	R	R	R	R										
Saturdays																													
Sundays																									R	R	R	R	R
Legend:																													
R		Provide at least one 11 ft through traffic lane for use by both directions of travel (Reversing Control). The maximum closure length is 0.5 miles																											
		No lane and/or shoulder closures allowed.																											
REMARKS: The full width of the traveled way shall be open for use by public traffic when construction operations are not actively in progress.																													

Chart no. 2: Lane Closure Restrictions for Designated Legal Holidays										
Thu	Fri	Sat	Sun	Mon	Tues	Wed	Thu	Fri	Sat	Sun
xx	H xx									
	xx	H xx								
	xx		H xx	xx						
	xx			H xx						
				xx	H xx					
					xx	H xx				
						xx	H xx	xx		
Legends:										
Refer to lane closure charts										
xx	The full width of the traveled way shall be open for use by public traffic.									
H	Designated Legal Holiday									

ATTACHMENT J

PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT (PEAR)



PRELIMINARY ENVIRONMENTAL ANALYSIS REPORT

Project Information

District 01	County MEN	Route 01	PM 75.7/76.2	EA 01-0B480K
Project Title Westport Sink				
Project Manager Frank Demling			Phone # (707) 445-6554	
Project Engineer Brian Simon			Phone # (707) 441-3935	
Environmental Branch Chief Adele Pommerenck			Phone # (530) 741-4215	
Environmental Coordinator Cassandra Pitts			Phone # (530) 741-4588	

Project Description

Purpose: The purpose of the project is to reduce the annual maintenance expenditures, alleviate safety concerns from the public, and prevent complete loss of this highway segment, for which there is no reasonable detour.

Need: The Westport Landslide frequently requires Caltrans Field Maintenance to repair the roadway after the soil mass mobilizes and damages or blocks the traveled way of this vital route. During normal rainfall years, the need for these repairs occur an average of 3-5 times per year. During the 2010/11 season, Field Maintenance forces were called upon 17 times over a one month period.

The landslide causes discontinuities of the roadway surface in the form of sinks, cracks and shifts of both vertical and horizontal alignments. The roadside area on the ocean side is also mobilized by the slide and at times, has contributed to loss of the structural section of the highway as well as clear recovery area. The combination of these impacts, have been a source of concern and complaints from the travelling public, local businesses and Field Maintenance crews.

Description of Work: The California Department of Transportation (Caltrans) is proposing to remove and reconstruct the existing roadway from post mile (PM) 75.7 to 76.2 on State Route (SR) 1 between Fort Bragg and Westport. The project scope will also include replacement of the existing drainage system, installation of a roadside drainage swale, excavation and grading of hillside areas, utility relocations, vegetation removal, and signage relocation. Shoulder backing will be placed throughout the project limits; staging areas at select locations and geotechnical drilling may occur near the head scarp (the upper limit of the slide). Due to the existing terrain and need to minimize impacts, previous geotechnical recommendations suggested using a helicopter to place drilling equipment and supplies uphill of the existing road if any geotechnical exploration is needed near the head scarp. It is unlikely that any construction will occur west of

the existing highway, including vista points, except for the removal and replacement of the existing drainage features.

Alternatives Considered:

Roadway Reconstruction with Retreat (partial)

Reconstruction of the roadway with a partially retreated alignment is an alternative considered feasible. The retreat alignment is described as being partial because the alignment is only proposed to shift up to 30' inland as opposed to a full retreat which would involve bypassing this coastline altogether. Such a partial retreat project was done at this location in 1996-97.

Other Alternatives Considered but Considered not Feasible:

Tunnels

A tunnel was considered as a means to avoiding the landslide. Such a tunnel would need to be deep and long enough to avoid being located within the slide. Due to the length of this tunnel, requirements would include emergency equipment (ventilation, fire suppression, back-up power, etc.); and design to highway standards which consists of lane and shoulder widths, cross slopes, vertical clearances, etc. Since construction costs for a tunnel of this magnitude are significant, this alternative was considered but considered not feasible and no further analysis is warranted.

Drainage wells

Drainage wells at the Westport landslide location are not considered viable due to depth of the slide and the lack of an available discharge location. Additionally, the subsurface water flow through the geological mass at this slide location is believed to be fracture controlled, and dewatering would be an ineffective way of stabilizing the slide. Therefore, drainage wells are not considered viable for this location and no further analysis is warranted.

Retaining Walls

Due to the magnitude (depth and width) of the Westport slide and the proximity of the slide to the ocean, which continuously erodes the toe of the slide, retaining walls are not a stand alone, feasible alternative and no further analysis is warranted.

Viaducts

Due to the characteristics of the slide mass, construction of viaducts are not considered an appropriate method of avoiding impacts to the highway by this slide. In particular, the width of the slide exceeds the length a viaduct that could be constructed without intermediate supports between the abutments. These supports would have to be located within the slide mass and would be exposed to lateral forces of the moving material. While intermediate piers can be shielded from these lateral forces by installing caissons (watertight box-like structures) which would serve as isolation casings around the piers, this slide location does not lend itself to this approach due to the size of the slide and no further analysis is warranted.

Full Inland Retreat

Full inland retreat was evaluated on a precursory level to assess the viability of such an alternative. Such an alignment would entail relocating the highway inland over steep terrain and through what appears on aerial photographs to be heavily forested, undeveloped lands. A magnitude of cost for this alternative has been roughly calculated based on the length of the

bypass, the Materials Lab recommendations for structural section, and right-of-way acquisition. Limited resources were spent on this alternative due to the anticipated likelihood this alternative would not be feasible and no further analysis is warranted.

Summary Statement

In order to identify environmental issues, constraints, costs and resource needs, a Preliminary Environmental Analysis Report (PEAR) has been prepared for this project. It is important to note that detailed environmental technical studies will be completed in the project approval and environmental document (PA&ED) phase of the project. Due to time constraints the various specialists conducted general database and prior project reviews rather than field reviews.

A final scope of work describing all aspects of the project (for example, staging areas, borrow/disposal sites, turnouts, construction easements, access locations, areas to be disturbed, excavation and fill quantities, etc.) will be necessary to adequately analyze potential project impacts and provide final mitigation and permit costs.

It is anticipated that an Initial Study with a Mitigated Negative Declaration (CEQA) and a Categorical Exclusion (NEPA) will be required for this project. Based on environmental workload and available resources, it may take 18-24 months from the Begin Environmental phase to PA&ED phase, and an additional 12 months to obtain permits after environmental has received enough design information to complete permit applications.

Anticipated Environmental Approval

CEQA		NEPA	
Environmental Determination			
Statutory Exemption	<input type="checkbox"/>		
Categorical Exemption	<input type="checkbox"/>	Categorical Exclusion	<input checked="" type="checkbox"/>
Environmental Document			
Initial Study or Focused Initial Study with proposed Negative Declaration (ND) or Mitigated ND	<input checked="" type="checkbox"/>	Routine Environmental Assessment with proposed Finding of No Significant Impact	<input type="checkbox"/>
		Complex Environmental Assessment with proposed Finding of No Significant Impact	<input type="checkbox"/>
Environmental Impact Report	<input type="checkbox"/>	Environmental Impact Statement	<input type="checkbox"/>
Estimated length of time (months) to obtain environmental approval:		<ul style="list-style-type: none"> • 18-24 months to PA&ED • 12 months to obtain permits - after sufficient design information is available to complete permit applications. 	

Technical Summaries

Biology: Preliminary investigation indicates the following sensitive biological resources and habitats may be present within the limits of the proposed project: marine mammals, nesting birds, rare plants, wetlands, and other waters of the United States. Federally listed species such as western snowy plover (*Charadrius alexandrinus nivosus*), Hoell's spineflower (*Chorizanthe howellii*), and Menzies' wallflower (*Erysimum menziesii*) may be present on the beach adjacent to the site. Impacts could occur to these species if work occurs in this area.

Specific field surveys will be required to: characterize habitats; to determine the presence and extent of water features that fall under the jurisdiction of the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), and California Coastal Commission (CCC); to survey for rare plants; and if beach habitat is to be used, to survey for snowy plover and additional rare plants (**Table 1**).

The following estimates of survey needs and timelines assume that the only alternative to be studied is a partial retreat, with the retreat no more than 40 feet beyond existing retreat and the new cut extending no more than 100 feet from existing edge of pavement; that the beach will not be used, and surveys for snowy plover and other beach species will not be necessary; one season of rare plant surveys will be adequate; biological studies begin in February; and the only technical reports needed will be a Natural Environment Study (NES) and Wetland Delineation. Deviation from these assumptions may add hours and add to the timeline.

Table 1: Anticipated Biological Surveys

Survey	Estimated Number of Survey Days (2 people required for each day; including drive time)	Time of Year
Habitat Characterization	3 Days	Any (preferably spring/summer)
Wetland Delineation	10 Days	Any (preferably summer)
Rare Plant Survey	12 Days	February to September, timed to capture specific blooming periods

Approximately sixteen months will be needed to conduct biological surveys, complete technical reports, and complete Marine Mammal Protection Act consultation process with the National Marine Fisheries Service (NMFS):

- Eight months will be needed to complete floristic and wildlife surveys, spanning at least the months of February and September;
- Two months will be needed for writing of technical reports, including NES and Wetland Delineation; and

- Six months will be needed for Marine Mammal Protection Act consultation with National Oceanic and Atmospheric Administration (NOAA) Fisheries.

Approximately twelve months will be needed to secure permits and agreements with USACE, RWQCB, and CDFW:

- Two months to prepare a Mitigation and Monitoring Plan;
- Two months to prepare permits applications; and
- Eight months for USACE, RWQCB, and CDFW to process applications.

If needed, up to two years may be required to secure suitable off-site wetland mitigation.

To complete biological work the District Biologist will require the following information:

- Scope of work describing all aspects of the project work (for example, staging areas, borrow/disposal sites, turnouts, construction easements, access locations, excavation and fill quantities, etc.);
- Detailed project plans showing, at minimum, existing and proposed right-of-way lines, environmental study limit, and cut and fill lines; and
- Aerial photographs at a scale of 1 inch = 200 feet, or georeferenced electronic design files, with the footprint of the project area including limits of proposed work, limits of grading/vegetation removal, existing and proposed right-of-way lines, extent of fill, dewatering access, and easement areas.

The items above need to be received to make the accurate assessments of potential biological impacts to resources and for consultation with the resource agencies.

Archaeology: If the project is confined to the existing right-of-way (which was covered by recent surveys), then it would not be necessary to prepare an Archaeological Survey Report (ASR). As described above, the existing right-of-way was recently surveyed. One site, CA-MEN-1355, is present in proximity to the project area and it may be necessary to protect this site by formally designating it as an Environmentally Sensitive Area (ESA), especially since there are few potential staging areas in the vicinity. This would require Native American consultation, preparation of a Historic Property Survey Report (HPSR), and notification sent to the State Historic Preservation Officer (SHPO).

If the project area extends onto unsurveyed lands outside of the existing right-of-way, then the proposed project will require a survey and preparation of an ASR and HPSR. Given the steepness of the terrain, it is unlikely that any archaeological sites would be identified in any previously unsurveyed areas. The need for an ESA to protect CA-MEN-1355 would still require the HPSR to be sent to SHPO. More steps would be necessary if any archaeological resources that require evaluation are identified during the archaeological resource survey.

The following tasks may be required to comply with Section 106 of the National Historic Preservation Act:

- Delineate an Environmental Study Limit (ESL)/Area of Potential Effects (APE);
- Fully define the vertical and horizontal extent of ground disturbance needed for project construction and delineate an Area of Direct Impacts (ADI);
- Conduct an updated records search at the Northwest Information Center to fully identify all previously recorded archaeological sites and prior archaeological studies;
- Consult with local historical societies, the Native American Heritage Commission, and local Native American representatives;
- Conduct an archaeological survey of any previously unsurveyed portion of the ESL;
- Prepare an ASR;
- Prepare a HPSR; and
- Coordinate with the State Office of Historic Preservation, if necessary.

The following tasks are necessary if any unevaluated archaeological sites are present within the ADI:

- Prepare an Extended Phase I/Phase II work plan;
- Conduct archaeological excavations; and
- Prepare an Extended Phase I/Phase II report.

The following tasks are necessary if the Phase II report or HRER concludes that cultural resources within the project area are eligible for listing in the NRHP:

- Prepare a Finding of Effect (FOE) document.
- Submit the FOE to Headquarters staff review (15 days) and transmittal to SHPO for a 30-day review period under the PA.

If the FOE concludes that the project would have an adverse effect on the qualities that make a resource eligible for listing, Caltrans must make all efforts to avoid or minimize the harm. If the adverse effect cannot be avoided, Caltrans will be required to:

- Prepare a Memorandum of Agreement (MOA) laying out the measures that will be implemented to minimize or mitigate the adverse effects on a historic property and establishing responsibility for implementing each of the measures; and,
- Consult with the SHPO regarding the terms of the MOA. Resolution of the terms of the MOA may take 6-18 months, depending on the complexity of issues and the feasibility of proposed mitigation measures.

In the event that the proposed project would have an adverse effect on cultural resources that are protected under Section 4(f) of the National Transportation Act (i.e., listed or eligible built environment resources or archaeological resources that warrant preservation in place), Caltrans must prove that there are no prudent and feasible alternatives before the project can proceed. Documentation and consultation for compliance with Section 4(f) may take 3-6 months.

A Consultant would likely be hired to complete any Extended Phase I, Phase II evaluation, and Phase III mitigation for the project. Consultant costs are not included in this PEAR. Site evaluations, however, can range from \$30,000 to \$100,000 per site. If a site is found eligible for

the National Register of Historic Places, Phase III (mitigation) work may take up to 36 months to complete, costing up to \$500,000 per site.

The attached is the Program Evaluation Review Technique (PERT) calculation spreadsheet for cultural resource surveys shows the most optimistic, most pessimistic, and most likely case scenarios. For this project:

- 1). The most optimistic scenario is that an intensive pedestrian survey of the ESL is not necessary, an ESA is needed to protect CA-MEN-1355, and a HPSR will be submitted to SHPO as notification.
- 2). The most pessimistic scenario is that surveys identify one previously unrecorded archaeological site within the APE that requires evaluation.
- 3). The most likely scenario is that an intensive pedestrian survey is needed, the survey will not identify any previously unrecorded sites, an ESA is needed to protect CA-MEN-1355, and a HPSR will be submitted to SHPO as notification.

Estimated hours range from approximately 205 to 591 hours. If any archaeological resources exist within previously unsurveyed portions of the ESL, the schedule for completing cultural resource studies will extend from three to five years to allow for evaluation of any identified resource(s) as well as possible impact mitigation. If project plans change, the conclusions of this PEAR Evaluation may be invalidated and potential impacts to cultural resources may need to be re-examined.

Public Land/Section 4(f): This project, as currently scoped, includes two vista points and a few vehicle pull out areas which may require preparation of a Section 4(f) Evaluation for areas designated as "Recreational Areas".

Hazardous Waste: An Initial Site Assessment was prepared for this project. Soil and vegetation will be disturbed during construction. New right-of-way and/or construction easements may be required. Based on this review, no potentially significant hazardous waste/material issues were identified for the project as proposed. Therefore, the project may be constructed without any Non Standard Special Provisions, Standard Special Provisions, or other restrictions from Office of Environmental Engineering South.

Water Quality: A Water Quality Assessment will be prepared during PA&ED.

Air: The proposed project is anticipated to be exempt from all air quality conformance analysis requirements. A technical memo will be prepared during PA&ED.

Noise: This project is not considered a Type I project as defined by Caltrans' Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects. A technical memo will be prepared during PA&ED.

Visual Resource: A Visual Impact Assessment will be prepared during PA&ED.

Floodplain: A Floodplain Evaluation Report Summary will be prepared during PA&ED.

Permits and Approvals

The project may require the following environmental permits and/or approvals:

- USACE Section 404 Nationwide Permit. The permit process can take approximately eight (8) months to complete. There is no cost associated with this permit, although mitigation may cost up to \$750,000.
- RWQCB Section 401 Water Quality Certification. The certification process can take approximately eight (8) months to complete and cost approximately \$5,000.
- CDFW 1602 Streambed Alteration Agreement. The permit process can take approximately eight (8) months to complete and cost approximately \$5,000.
- Consultation with NOAA pursuant to Marine Mammal Protection Act may be required to cover incidental harassment to marine mammals using haul-outs or rookeries near the site. Consultation can take up to 10 months to complete.
- Consultation with CDFW for Threatened or Federal Endangered Species may be required. Avoidance and minimization measures, such as work windows, environmentally sensitive areas, and others, would be needed. Compensatory mitigation measures may also be required. Consultation can take 6-8 months to complete.
- Consultation with USFWS may be required if work, storage, or any project activities that would take place on beach habitat.

Disclaimer

This report is not an environmental document. The recommendations above are based on the current project description in the November 26, 2013 ESR and its attached Environmental Mapping and Submittal Checklists. The discussion and conclusions provided by this mini-PEAR are approximate and are based on record reviews to estimate the potential for probable effects. The purpose of this report is to provide a preliminary level of environmental analysis to supplement the Project Initiation Document. Changes in project scope, alternatives, or environmental laws will require a re-evaluation of this report.

List of Preparers

Biologist Sean Marquis	Date: December 12, 2013
Archaeologist Jeff Haney	Date: December 12, 2013
Hazardous Waste/Materials Specialist Mark Melani	Date: December 12, 2013
Air Specialist Saeid Zandian	Date: December 11, 2013
Noise Specialist Saeid Zandian	Date: December 11, 2013

Review and Approval

I confirm that environmental cost, scope, and schedule have been satisfactorily completed and that the PEAR meets all Caltrans requirements.

Approved by:



Adele Pommerenck, Senior Environmental Planner

Date: 12/19/13

Reviewed by:



Frank Demling, Project Manager

Date: 12/19/13

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 01-MEN-1 -75.7/76.2	EA: 01-0B480K
Project Description: Westport Sink	
Form completed by (Name/District Office): Sean Marquis, D3 Biologist	
Project Manager: Frank Demling	Phone Number: 707-445-6554
Date: 12/12/13	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input checked="" type="checkbox"/> Fish and Game 1602 Agreement	5000
<input checked="" type="checkbox"/> Coastal Development Permit	3000
<input type="checkbox"/> State Lands Agreement	
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	5000
<input checked="" type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	0
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	
<input type="checkbox"/> Other:	0
Total (enter zeros if no cost)	13000

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- o Report costs in \$1,000s.
- o Include all costs to complete the commitment:
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Alternative		
	Estimated Cost in \$1,000's	Notes
Noise abatement or mitigation		
Special landscaping		
Archaeological resources		
Biological resources	750000	Wetland Mit Est
Historical resources		
Scenic resources		
Wetland/riparian resources		
Res./bus. relocations		
Other:		
Total (enter zeros if no cost)	750000	

ATTACHMENT K

FULL RETREAT ALIGNMENT

