

State of California  
Department of Transportation  
District 4

File: 4-SM-1 36.6/41.0  
4243-112371  
Devil's Slide Bypass

~~NE~~  
~~\*BIOLOGICAL ASSESSMENT\*~~  
~~SPECIES OF CONCERN~~

STATE ROUTE 1 DEVIL'S SLIDE BYPASS PROJECT  
SAN MATEO COUNTY  
CALIFORNIA



Office Of Environmental Planning, South

December 15, 1999

State of California  
Department of Transportation  
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**\*NATURAL ENVIRONMENT STUDY\***

**STATE ROUTE 1 DEVIL'S SLIDE BYPASS PROJECT**

**SAN MATEO COUNTY**

**CALIFORNIA**

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## SUMMARY OF FINDINGS

This Natural Environment Study addresses the potential impacts that may occur as a result of a proposed bypass of the unstable Devil's Slide area on State Route 1 in San Mateo County, California. Two bypass alternatives were under consideration in the draft environmental document: the Martini Creek Alignment alternative and the Tunnel alternative. The Tunnel alternative has been selected as the preferred alternative and will result in considerably less impacts to the natural environment. The Tunnel alternative either greatly reduces or avoids impacts to species of concern, wetlands, riparian habitat, and coastal scrub/grassland.

One State endangered and former federal endangered species, the peregrine falcon (*Falco peregrinus anatum*), is found in the immediate vicinity of the Tunnel alternative and one federal threatened species, the California red-legged frog (*Rana aurora draytonii*), is present on the proposed project site. The peregrine falcon nests on a coastal bluff near the south portal. The California red-legged frog is found in association with two ponds on the western end of Shamrock Ranch at the north end of the Tunnel alignment.

The peregrine falcon was removed from the federal list of endangered and threatened wildlife on August 25, 1999. Mitigation measures are still required for this species based on Section 7 of the Endangered Species Act regarding the responsibilities of Federal agencies (Pine, pers. comm., 1999). With mitigation measures planned as part of the proposed project, the Tunnel alternative is not likely to adversely affect either species. With enhancement measures proposed for the Shamrock Ranch ponds, the Tunnel alternative is likely to benefit the California red-legged frog over the long term. The alternative could benefit the falcon under one of the mitigation options currently being considered.

The preferred alternative will eliminate a little over 0.05 ha (1/10 acre) of existing wetlands and approximately 0.09 ha (1/5) of riparian habitat. Since a mitigation site is planned as part of the Tunnel alternative, the impacts to wetlands and riparian habitat are not considered significant. There are presently two options for this mitigation site (see Section 4.3). When the mitigation site is formally selected, a conceptual mitigation plan will then be prepared and sent to the U.S. Fish and Wildlife Service (USFWS), the U.S. Army Corps of Engineers (COE), and the California Department of Fish and Game (CDFG) for comment and approval. The Tunnel alternative will also affect approximately 9 ha (22.5 acres) of coastal scrub/grassland. Since coastal scrub and grassland species will be planted as part of the revegetation project, this impact is not considered significant.

The Tunnel alternative will result in cuts, fills, and earth disturbances on areas within the project site. Comprehensive construction mitigation measures are required to reduce the potential significant impacts to species of concern, wetlands, and the Pacific Ocean marine environment to non-significant levels.

Cumulative impacts to either listed species or biological resources are not anticipated because other projects in the area include measures to protect those species and resources, if present, and to mitigate for unavoidable impacts. The preferred alternative will not increase capacity of State Route 1 through the Devils Slide area, so no growth inducement impacts are expected.

## 1.0 INTRODUCTION AND BACKGROUND

The California Department of Transportation (Caltrans), in conjunction with the Federal Highway Administration (FHWA), is proposing a permanent new highway to bypass the Devils Slide portion of State Route 1 in San Mateo County (Exhibit A). The purpose of the project is to provide a safe, dependable and stable highway around the geologically unstable area at Devils Slide. Since the construction of the existing Devils Slide segment of State Route 1 in 1937, several geologic factors have contributed to landslides, rock falls and subsidence resulting in diminished roadway width. Despite drainage improvements, pavement reinforcement and rock anchors, the road continues to experience difficulties and closures related to earth movement.

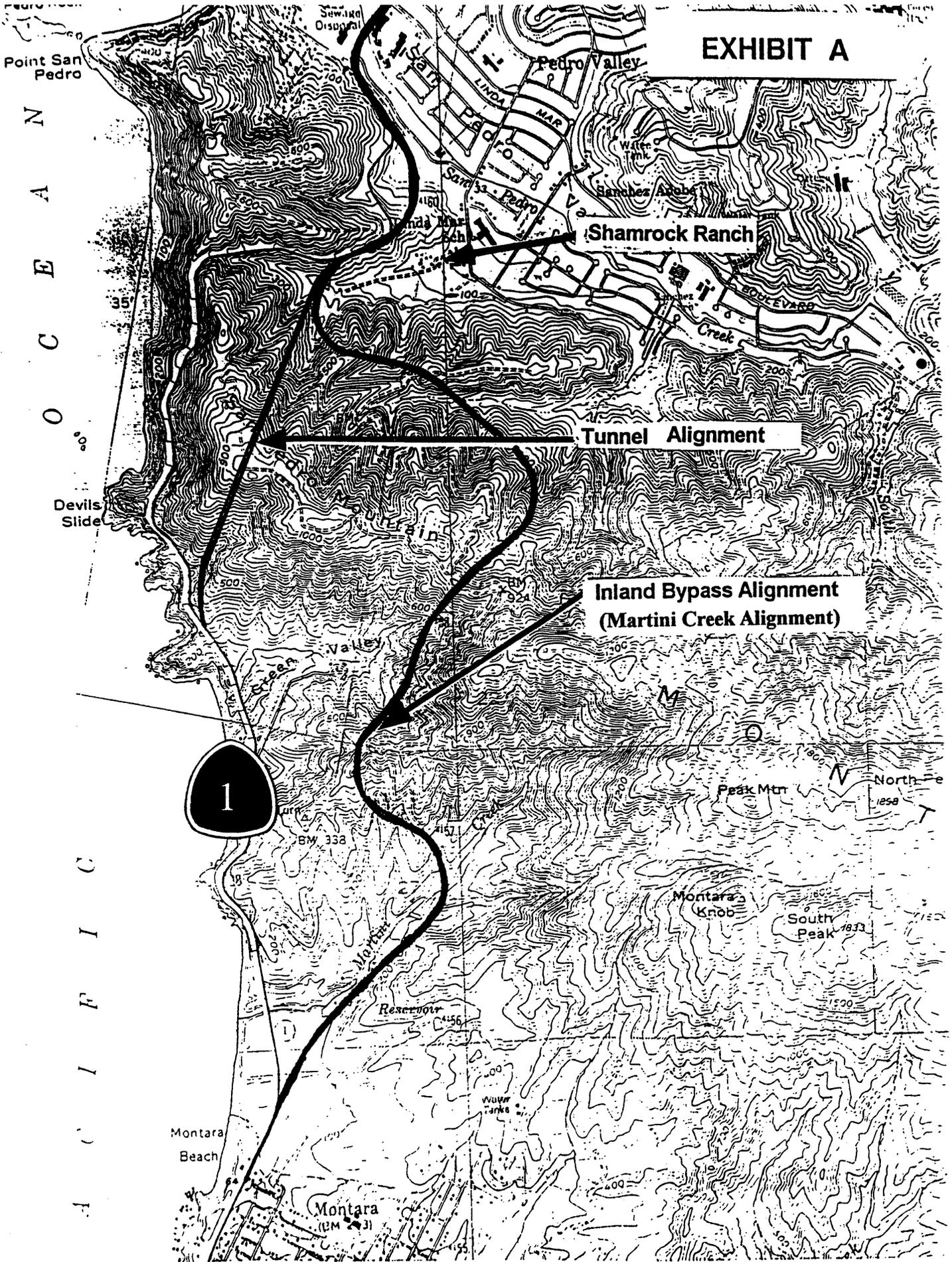
The Tunnel alternative has been selected as the preferred alternative. As stated previously, the Tunnel alternative will not contribute to growth inducement on the San Mateo coastside because it will not result in an increase in capacity of the highway facility.

The original Martini Creek Alignment alternative (Exhibit A), a conventional surface highway, was the subject of a Biological Assessment prepared by Caltrans in 1983. A single listed species, the federal endangered San Bruno elfin butterfly (*Callophrys mossii bayensis*), was identified at that time in the immediate vicinity of that proposed project. In 1986, the U.S. Fish and Wildlife Service (USFWS) issued a Biological Opinion (Case No. 1-1-86-F-88) finding that the inland bypass, with stipulated mitigation measures, would not likely jeopardize the continued existence of the San Bruno elfin butterfly.

In November of 1996, the voters of San Mateo County passed a ballot initiative to amend the San Mateo County Local Coastal Program (LCP), substituting a tunnel in place of the inland bypass (Exhibit B). In January 1997, the California Coastal Commission certified the amendment to the LCP and specified a tunnel as the preferred bypass alignment while deleting references to the Martini Creek Alignment alternative. At that time, Caltrans suspended further biological field surveys associated with the inland bypass to concentrate on an analysis of the impacts of the preferred tunnel alternative. A Supplemental EIS/EIR addressing the tunnel as the preferred alternative is now being circulated.

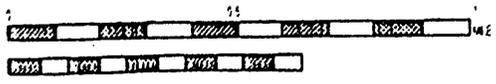
Caltrans requested a new species list, which the USFWS provided on November 15, 1996. A Biological Assessment (Caltrans, 1999) has been prepared that focuses on the evaluation of potential impacts of the tunnel alternative on species included on the 1996 list. Supplemental species information and project revisions related to the 1983 Biological Assessment, developed prior to the LCP amendment, are also included for information purposes.

# EXHIBIT A

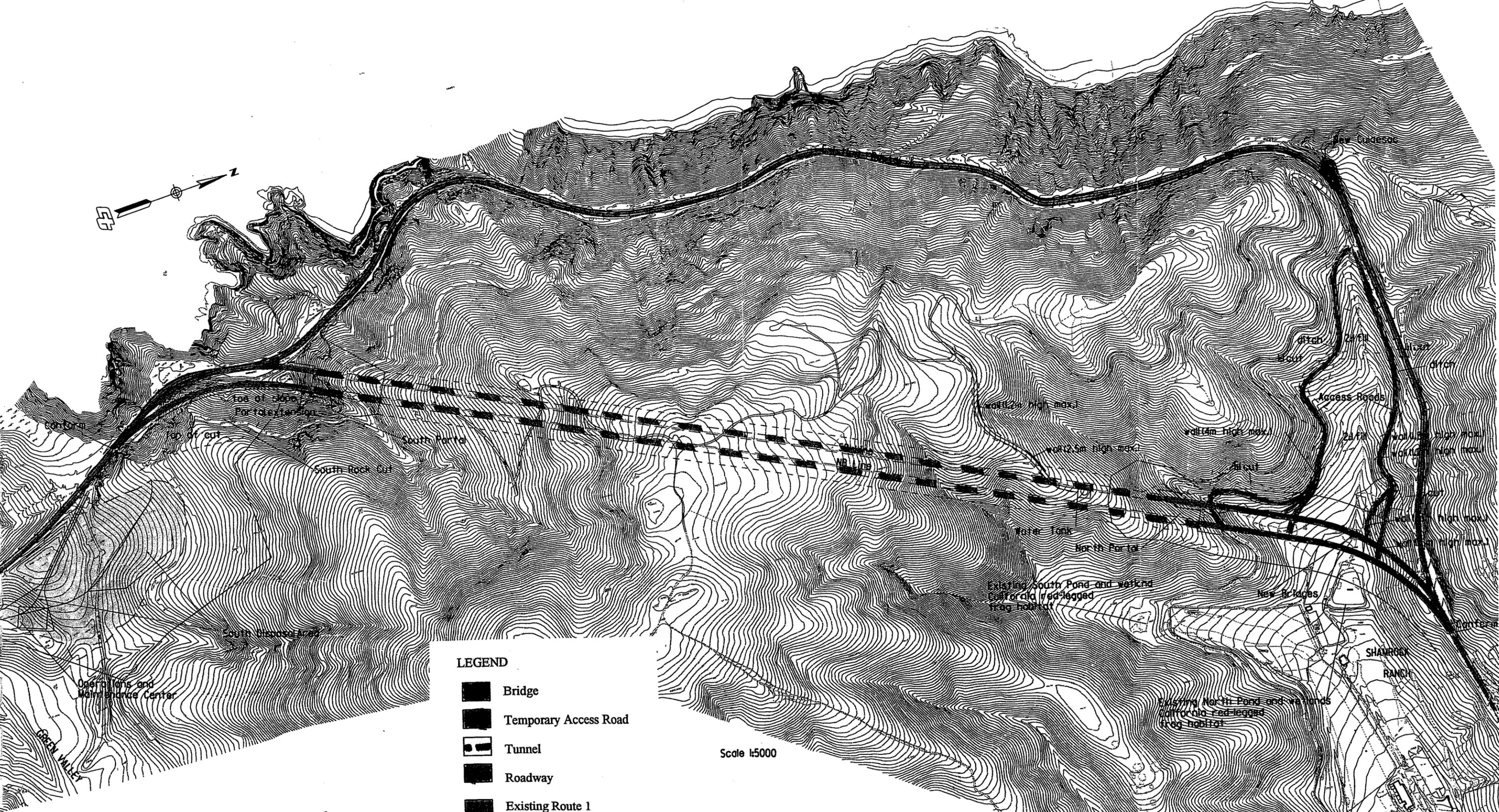
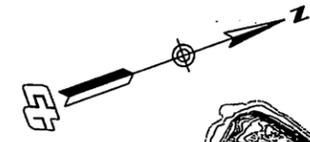


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Devil's Slide Bypass



- LEGEND**
-  Bridge
  -  Temporary Access Road
  -  Tunnel
  -  Roadway
  -  Existing Route 1
  -  Disposal Site

Scale 1:5000

TUNNEL ALIGNMENT

## **2.0 PROJECT DESCRIPTION**

The proposed tunnel, the preferred alternative, will consist of approximately 1,981 meters (6,500 feet) of new alignment along State Route 1, including two parallel tunnels with a length of 1,219 meters (4,000 feet), a north portal approach of 457 meters (1,500 feet) that includes parallel bridges measuring 320 meters (1,050 feet), and a south portal approach of 305 meters (1,000 feet). Approximately 1,600 meters (5,250 feet) of the existing road will be abandoned as a result of the realignment, with cul-de-sacs proposed at both ends of the abandoned highway (Exhibit B).

Proceeding south from Pacifica, the alignment departs from existing State Route 1 along an uphill grade approximately 0.5 kilometer (0.3 mile) south of Linda Mar Boulevard in Pacifica, bridges the valley at Shamrock Ranch on a curve and enters the twin tunnels beneath San Pedro Mountain (Exhibits A and B). To maximize driver safety and facilitate construction, the tunnels would be constructed on a uniform grade with no horizontal curves. The alternative exits the tunnels at a cliff face just south of the Devils Slide promontory and rejoins the existing highway on a slight downhill grade. The alternative has an 80 kilometer/hour (50 MPH) design speed. Two tunnel design variations are being considered: one with 9.1-meter (30-foot) wide tunnels and a second with 11.0-meter (36-foot) wide tunnels.

The proposed bridges would be approximately 36.5 meters (120 feet) above the valley floor of Shamrock Ranch. For each bridge, in addition to end abutments, intermediate piers would be required on either side of the valley. The bridges would clear-span the most sensitive habitats in the valley. The segmented balanced cantilever method would be used to construct the bridges.

The project will generate between 724,000 cubic meters (946,950 cubic yards) and 763,000 cubic meters (282,590 cubic yards) of material, depending on which tunnel variation is selected. Most of this material will be generated from the tunneling operation, but excavation is required at both portals as well as at a rock cut located approximately 90 meters (300 feet) south of the south portal. A small amount of fill material will be required at the bridge approaches behind the abutments, but most of the excavated material will be excess. All excess soil will be transported to a fill disposal site located approximately 549 meters (1800 feet) south of the south portal (Exhibit B). A Tunnel Operations and Maintenance Center will be constructed near the existing highway on a portion of the disposal site. The disposal site will include the creation of a mitigation site in the form of a small seasonal wetland. The remainder of the site will be contour graded and revegetated with coastal scrub species.

## **3.0 NATURAL ENVIRONMENT SETTING**

The project site is located in the Santa Cruz Mountains which are part of the Coast Ranges of California. Devils Slide is a place name given to a steep, rocky coastal promontory located about midway between Montara and the Linda Mar District of Pacifica. Locally, however, Devils Slide commonly refers to the entire stretch of rugged coastline extending from the promontory north to Point San Pedro (Exhibit A).

San Pedro Mountain, which rises to over 305 meters (1,000 feet) in elevation about 805 meters (0.5 mile) inland from the ocean, backs Devils Slide to the east and marks the northern end of the larger landmass known as Montara Mountain. Montara Mountain forms the high northwest trending ridge separating the San Mateo County coast from San Francisco Bay.

The summit ridge of San Pedro Mountain trends west-northwest from Montara Mountain across both alignments. The tunnel would pass under this summit ridge approximately 0.4 kilometer (0.25 mile) inland of the existing highway. The terrain is characterized by steep, eroded slopes with natural gradients ranging between thirty and seventy percent. Deeply incised gullies drain the ridges. An old, abandoned county road, several graded fire and utility maintenance roads, and foot trails crisscross San Pedro Mountain.

The San Andreas Fault complex has been a major factor in the development of the site topography and soils. Soils of the northern slopes of San Pedro Mountain are mostly developed on sedimentary rocks and consist of sandy loam and silt loam surface layers over silty clay and silty clay loam subsoils (Lindsey, 1974). Boulders and cobbles derived from a conglomerate in the underlying geologic section are also present (Ellen, et al, 1972). Small coastal valleys occur throughout the length of the project along the major drainages within the Montara Mountain watershed. The soils in these valleys are deep and moderately well drained and have developed on low terraces and alluvial fans along the stream channels (Lindsey, 1974).

The climate of the study area is Mediterranean with a strong maritime influence. The winters are relatively warm with a short rainy season. Summers tend to be relatively cool and dry but subject to extended periods of coastal fog. Temperature ranges, seasonally and diurnally, are narrow while air moisture remains relatively high. Wind is an important environmental factor on the exposed slopes of San Pedro Mountain and Montara Mountain.

### 3.1 Vegetation

The project corridor traverses areas containing vegetation that is both natural and introduced (see Exhibit C). For more detailed information on the vegetation of the project area, please refer to the 1983 Biological Assessment (Caltrans, 1983a) and the 1983 Natural Environment Study (Caltrans, 1983b).

#### Coastal Scrub

Extremely dense coastal scrub covers most of the project vicinity, especially those portions over San Pedro Mountain and along the steeper foot slopes of Montara Mountain. This plant community is dominated by coastal sage (*Artemisia californica*) and coyote brush (*Baccharis pilularis*). Other common species include poison oak (*Rhus diversilobum*), bush monkey flower (*Diplacus aurantiacus*), and California blackberry (*Rubus vitifolius*). Additional herbs include yarrow (*Achillea millefolium v. californica*), pearly everlasting (*Anaphalis margaritacea*), yerba buena (*Satureja douglasii*), coast figwort (*Scrophularia californica*), monardella (*Monardella villosa v. franciscanum*) and lizard tail (*Eriophyllum staechadifolium*). Small grassy openings and barren rocky areas are scattered throughout the

SHAMROCK RANCH

INLAND BY PASS

GREEN VALLEY

TUNNEL

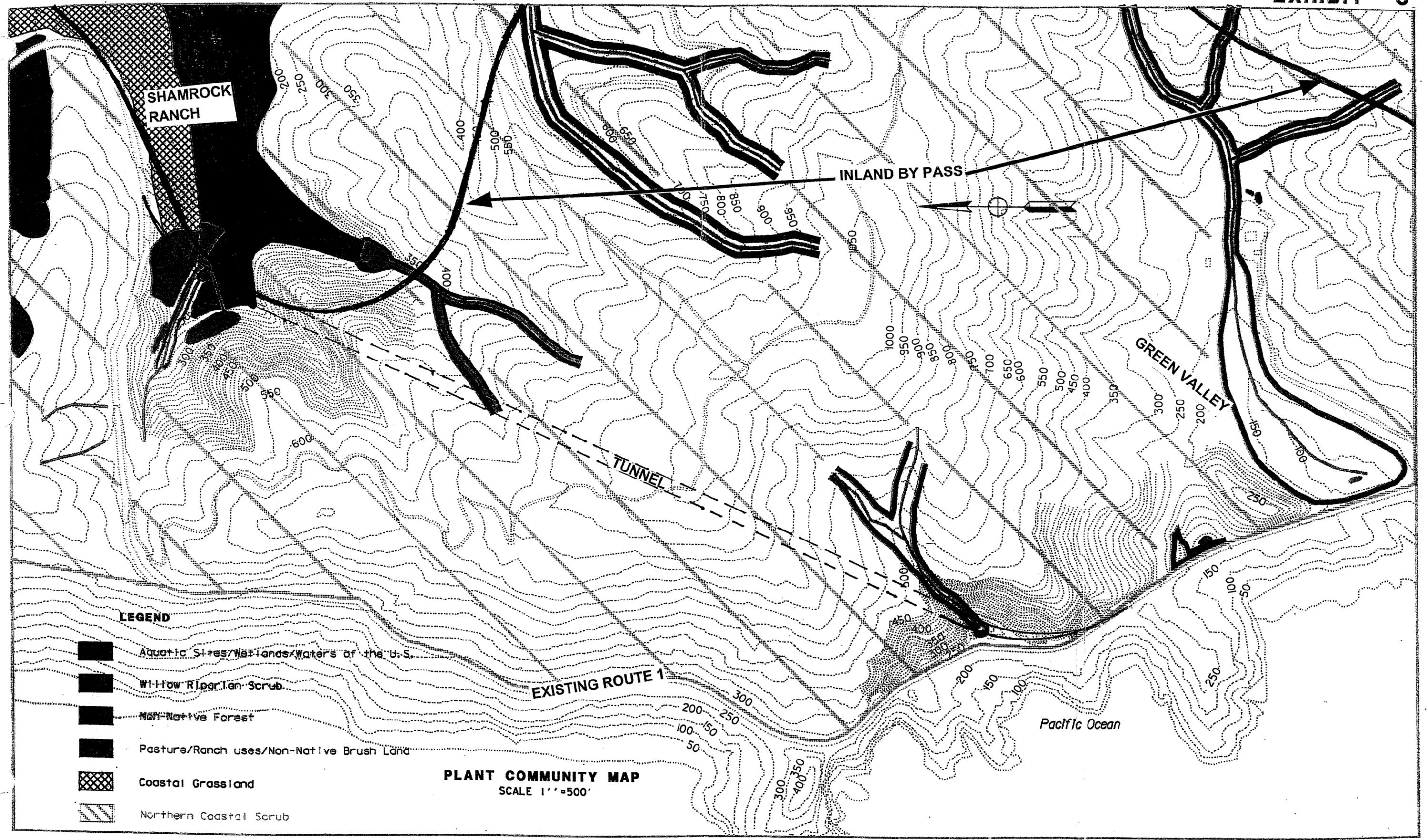
EXISTING ROUTE 1

Pacific Ocean

LEGEND

-  Aquatic Sites/Wetlands/Waters of the U.S.
-  Willow Riparian Scrub
-  Non-Native Forest
-  Pasture/Ranch uses/Non-Native Brush Land
-  Coastal Grassland
-  Northern Coastal Scrub

PLANT COMMUNITY MAP  
SCALE 1" = 500'



scrub areas. The scrub extends westerly from the tunnel alignment to the cliffs above Devil's Slide, although coyote brush becomes less dominant nearer the coast. Poison oak and coastal sage dominate along the bluffs.

#### Wetlands And Riparian Habitat

In the project area, the Shamrock Ranch north pond, its associated drainages, the drainage at the proposed location for the south portal, and the drainage at the proposed fill disposal site contain wetlands and riparian habitat. The riparian vegetation of the Shamrock Ranch north pond is dominated by arroyo willow (*Salix lasiolepis*), blackberry (*Rubus vitifolius*), tule (*Scirpus californicus*), curly dock (*Rumex crispus*), and rush (*Juncus balticus*). The south portal drainage vegetation is dominated by arroyo willow, poison hemlock (*Conium maculatum*), stream monkey flower (*Mimulus guttatus*), blackberry, water parsley (*Oenanthe sarmentosa*), and paniced bulrush (*Scirpus microcarpus*). The proposed fill disposal site is dominated by arroyo willow, cudweed (*Gnaphalium palustre*), sneezeweed (*Helenium puberulum*) and cut-leaved plantain (*Plantago coronopus*).

#### Coastal Grassland

Coastal grassland is located at the north end of the project site including where the preferred alternative branches off from the existing Route 1 roadway. The area of coastal grassland includes a portion of Shamrock Ranch and State right-of-way immediately adjacent to the existing Route 1 roadway. The agricultural and transportation land uses have greatly altered the coastal grassland that originally existed on the site.

#### Non-Native Forest

In the past, the Shamrock Ranch owners planted introduced trees on some portions of their property. These trees include blue gum (*Eucalyptus globulus*), Monterey pine (*Pinus radiata*), and Monterey cypress (*Cupressus macrocarpa*). In the forested areas, the shrub story is virtually lacking and consists primarily of blackberry (*Rubus spp.*), poison oak, and broom.

#### Pasture/Ranch Uses/Non-Native Brushland

The areas within Shamrock Ranch, which are grazed by horses, are dominated by annual grasses and weedy herbs. The non-native brushland contains disturbed or former agricultural and grazing areas which have created an overgrown, early successional stage of plant community development. The vegetation includes mostly invasive, annual plants dominated by poison hemlock, and perennial shrubs such as coyote brush, and blackberry.

### **3.2 Wildlife**

Small reptiles, such as the western fence lizard, are common throughout the study area. Amphibians inhabit the riparian and wetland locations and include salamanders, Pacific tree frog, and California red-legged frog. Although sightings of the common garter snake were recorded; however, the endangered San Francisco garter snake was not found.

A number of bird species were either heard or observed during the field reconnaissance and surveys. The diversity of habitat and abundance of ecotonal areas created by the pattern of natural vegetation and agricultural activities provides excellent foraging opportunities for raptors and scavengers such as owl, red-tailed hawk, kestrel, raven, and turkey vulture. The California quail appears to be a common species. Other birds observed include: the white throated swift, song sparrow, white crown sparrow, Bewicks wren, barn swallow, cliff swallow, Wilson warbler, yellow warbler, bushtit, scrub jay, California thrasher, brown towhee, spotted towhee, lesser goldfinch, and house finch. In addition, the peregrine falcon (*Falco peregrinus anatum*), a former endangered species, nests on a coastal bluff near the south portal of the proposed tunnel (see Exhibit D of the 1999 Biological Assessment).

Mammals observed in the project area include raccoon, brush rabbit, black-tailed hare, grey squirrel, chipmunk, ground squirrel, and black-tailed deer. Other carnivores expected in the area include striped and spotted skunk and coyote. Cougar has been reported from the vicinity of Montara Mountain but was not observed in the study area. For more detailed information on the wildlife found in the area, refer to the 1983 Biological Assessment (Caltrans, 1983a) and 1983 Natural Environment Study (Caltrans, 1983b).

### 3.3 Species Of Concern

"Species of concern" is a plant and wildlife category used by Caltrans to include species that are either listed, proposed for listing, or are candidates for listing by the USFWS and the CDFG, as well as those species which appear to meet the definitions of rare or endangered under the California Environmental Quality Act (CEQA). A species list for the original bypass project was provided by the USFWS on October 20, 1982 (SESO #1-1-83-SP-15); this list is included in the earlier Biological Assessment (Caltrans, 1983a). As noted earlier, this list of species was verbally updated in 1995 (Matt Vandenburg, pers. comm., 1995). Following passage of the tunnel initiative, a new species list was requested from the USFWS, and this list was dated November 15, 1996. The latest updated species list (1-1-99-SP-275; Appendix 1 of the 1999 Biological Assessment) was provided by the USFWS on December 3, 1998.

The Biological Assessment discusses the potential effects of the preferred alternative on the species of concern. The initial assessment of the 1998 list of plant and wildlife species of concern from the Montara Mountain quadrangle is provided in Tables 1 and 2. Focused field surveys were undertaken for those species for which potential habitat was found *in the vicinity of the preferred tunnel alternative* during that initial assessment, as indicated in the third column of Tables 1 and 2. A "Yes" in the fourth column in Tables 1 and 2 indicates those species that were found during those field surveys and those species are discussed in detail in Sections 5.1 and 5.2 of the 1999 Biological Assessment. A "Yes" in the third column followed by a "No" in the fourth column indicates that the species was not found *in the vicinity of the preferred tunnel alternative* during the focused surveys. The results of field surveys performed for the inland bypass, prior to passage of the ballot initiative, in response to the 1995 verbal update of the list are included because the information expands on the data presented in the earlier Biological Assessment (Caltrans, 1983a).

TABLE 1. WILDLIFE SPECIES OF CONCERN

SCIENTIFIC NAME COMMON NAME STATUS: STATE/FEDERAL	SPECIES HABITAT	POTENTIAL HABITAT?	SPECIES FOUND?	
			Tunnel	Inland Bypass
<i>Agelaius tricolor</i> Tri-colored blackbird SC/SC	Freshwater Marshes in Dense Emergent Vegetation	Yes	No	No
<i>Ambystoma californiense</i> California tiger salamander SC/C	Grasslands and Ephemeral Ponding Areas	Yes	No	No
<i>Amphispiza belli belli</i> Bell's sage sparrow SC/SC	Low to Dense Stands of Shrubs in Scrub	Yes	No	No
<i>Brachyramphus marmoatus</i> Marbled murrelet E/T	Old Growth Redwood Forests	No	No	No
<i>Buteo regalis</i> Ferruginous hawk SC/SC	Various Uplands, Especially Ag Fields	Yes	No	No
<i>Charadrius alexandrinus nivosus</i> Western snowy plover SC/SC	Estuarine	No	No	No
<i>Cicindela hirticollis gravida</i> Sandy beach tiger beetle SC/SC	Sandy Beaches Open Paths	No	No	No
<i>Clemmys marmorata marmorata</i> Northwestern pond turtle SC/SC	Ponds and Slow Moving Water Bodies	Yes	No	No
<i>Clemmys marmorata pallida</i> Southwestern pond turtle SC/SC	Ponds and Slow Moving Water Bodies	Yes	No	No
<i>Coelus globosus</i> Globoso dune beetle SC/SC	Sand Dunes	No	No	No
<i>Eucyclobius newberryi</i> Tidewater goby SC/E	Coastal Lagoons and Streams	No	No	No
<i>Eumops perotis californicus</i> Great western mastiff-bat SC/SC	Coastal Scrub Grassland	Yes	No	No
<i>Falco peregrinus anatum</i> Peregrine falcon E/E *	Nests on Cliffs, Bluffs, and Bridges Forages in Various Habitats	Yes	Yes	Yes
<i>Haliaeetus leucocephalus</i> Bald eagle E/T	Nests in Large Trees Near Water; Forages in Large Bodies of Water	No	No	No

TABLE 1. WILDLIFE SPECIES OF CONCERN (continued)

SCIENTIFIC NAME COMMON NAME STATUS: STATE/FEDERAL	SPECIES HABITAT	POTENTIAL HABITAT?	SPECIES FOUND?	
			Tunnel	Inland Bypass
<i>Hydrochara rickseckeri</i> Ricksecker's water scavenger beetle None/SC	Aquatic Scavenger Found in Still Pools and Ponds	Yes	No	No
<i>Hydroporus leechi</i> Leech's skyline diving beetle None/SC	Aquatic Scavenger Found in Still Pools and Ponds	Yes	No	No
<i>Hypomesus transpacificus</i> Delta smelt T/T	Marine, Estuarine, and Lacustrine	No	No	No
<i>Icaricia Icaroides missionensis</i> Mission blue butterfly None/E	Grasslands With Larval Foodplants ( <i>Lupinus albifrons</i> , <i>L. formosus</i> , and <i>L. variicolor</i> )	Yes	No	No
<i>Incisalia mossii bayensis</i> San Bruno elfin butterfly None/E	North Facing Slopes in Coastal Scrub With Larval Foodplant Sedum spatulifolium	Yes	No	Yes
<i>Lampetra tridentata</i> Pacific lamprey None/SC	Marine Estuarine Lacustrine	No	No	No
<i>Lichnanthe ursina</i> Bumblebee scarab beetle None/SC	Various Land	Yes	No	No
<i>Myotis evotis</i> Long-eared myotis bat None/SC	Roosts in Structures, Caves, and Crevices; Forages in Woodland Scrub	Yes	No	No
<i>Myotis thysanodes</i> Fringed myotis bat None/SC	Roosts in Structures, Caves, and Crevices; Forages in Arid Woodland	No	No	No
<i>Myotis volans</i> Long-legged myotis bat None/SC	Roosts in Structures, Caves, and Crevices; Forages in Woodland Scrub	Yes	No	No
<i>Myotis yumanesis</i> Yuma myotis bat None/SC	Roosts in Structures, Caves, and Crevices; Forages in Various Habitats	Yes	No	No
<i>Neotoma fuscipes annectens</i> San Francisco dusky-footed woodrat SC/SC	Dense Chaparral and Riparian Thickets; Oak Woodland	Yes	No	No

TABLE 1. WILDLIFE SPECIES OF CONCERN (continued)

SCIENTIFIC NAME COMMON NAME STATUS: STATE/FEDERAL	SPECIES HABITAT	POTENTIAL HABITAT?	SPECIES FOUND?	
			Tunnel	Inland Bypass
<i>Oncorhynchus kisutch</i> Coho salmon E/T	Marine Estuarine Lacustrine	No	No	No
<i>Oncorhynchus mykiss</i> Central California steelhead SC/T	Marine Estuarine Lacustrine	No	No	No
<i>Pelecanus occidentalis californicus</i> California brown pelican E/E	Marine Estuarine Lacustrine	No	No	No
<i>Phrynosoma coronatum frontale</i> California horned lizard None/SC	Open Coastal Scrub Sandy Washes	No	No	No
<i>Plecotus townsendii townsendii</i> Pacific western big-eared bat SC/SC	Roosts in Structures, and Caves Various Woodlands	Yes	No	No
<i>Pogonichthys macrolepidotus</i> Sacramento split-tail None/PT	San Francisco Bay	No	No	No
<i>Rallus longirostris obsoletus</i> California clapper rail E/E	Estuarine	No	No	No
<i>Rana aurora draytonii</i> California red legged frog SC/T	Grasslands, Ponds, Marshes, and Slow Moving Areas of Streams or Lakes	Yes	Yes	Yes
<i>Rana boylei</i> Foothill yellow legged frog SC/SC	Streams and Rivers	No	No	No
<i>Reithrodontomys raiviventris</i> Salt marsh harvest mouse ET/E	Salt Marshes Emergent Wetland	No	No	No
<i>Thamnophis sirtalis tetrataenia</i> San Francisco garter snake E/E	Ponds, Marshes, and Ephemeral Ponding Areas	Yes	No	No
<i>Oceanodroma homochroa</i> Ashy storm-petrel None/SC	Coastal; Pt Reyes to Baja California	Yes	No	No
<i>Spirinchus thaleichthys</i> Long fin smelt None/SC	Bays and Estuaries; From San Francisco Northward	No	No	No

TABLE 2. PLANT SPECIES OF CONCERN

SCIENTIFIC NAME COMMON NAME STATUS: STATE/FEDERAL	SPECIES HABITAT	POTENTIAL HABITAT?	SPECIES FOUND?	
			Tunnel	Innland Bypass
<i>Arctostaphylos imbricata</i> Montara manzanita None/SC	Granitic Sand and Sandstone in Mixed Chaparral	Yes	No	Yes
<i>Chorizanthe cuspidata var. cuspidata</i> San Francisco Bay spineflower None/SC	Coastal and Inland Dunes	No	No	No
<i>Fritillaria liliacea</i> Fragrant fritillary None/SC	Open Hills and Fields Near the Coast	Yes	No	No
<i>Grindelia hirsutula var. maritima</i> San Francisco gumplant None/SC	Coastal Bluffs and Sandy or Serpentine Slopes	Yes	No	No
<i>Lessingia arachnoidea</i> Crystal Springs Lessingia None/SC	Open Serpentine Barrens	No	No	No
<i>Lupinus arboreus var. eximius</i> San Mateo tree lupine None/SC	Rocky Outcrops in Coastal Scrub	Yes	No	Yes
<i>Pentachaeta bellidiflora</i> White rayed pentachaeta E/E	Open, Dry, and Rocky Slopes; Coastal Scrub and Prairie	Yes	No	No
<i>Potentilla hickmanii</i> Hickman's cinquefoil E/E	Open or Forested Areas Near the Coast; Marshes and Streams	Yes	No	Yes
<i>Silene verecunda ssp. Verecunda</i> Mission Delores campion None/SC	Open, Grassy Areas in Sand to Rocky Soils Near the Coast	Yes	No	No
<i>Horkelia marinensis</i> Point Reyes horkelia None/SC	Sandy Coastal Flats	Yes	No	No

**TABLES 1 & 2**

**PLANT AND WILDLIFE SPECIES OF CONCERN**

**KEY TO SPECIES STATUS**

(lists updated 12-2-98 and 11-15-96)

- (E) Endangered
- (T) Threatened
- (R) Rare
- (P) Proposed Species For Listing as Endangered or Threatened
- (C) Candidate
- (SC) Species of Concern

E \* Peregrine Falcon Removed From Federal List On August 25, 1999

### **3.4 Wetland Delineation Technical Assessment**

The methodology formulated by the U.S. Army Corps of Engineers (COE) in the "Wetlands Delineation Manual" (Envr. Lab., 1987) was used to determine the wetlands on the project site. The COE method evaluates potential wetland based on the following three parameters:

- (1) Prevalence of hydrophytic vegetation
- (2) Hydric soils
- (3) Wetland hydrology

Preliminary wetland delineations were performed for the proposed tunnel in 1995 and 1996. Wetlands were delineated at the Shamrock Ranch north pond area, the south portal drainage, and the proposed fill disposal site drainage. Preliminary wetland delineations in the field resulted in determinations of a prevalence of hydrophytic vegetation, a hydric soil, and a wetland hydrology. The preliminary wetland delineation for the preferred alternative was verified by the COE during a field review at the project site on September 5<sup>th</sup> and 8<sup>th</sup> of 1997. A discussion of the size and type of wetlands is presented in Section 6.3.

## **4.0 PROJECT IMPACTS AND MITIGATION MEASURES**

The following sections provide detailed impact assessments and mitigation measures for the preferred alternative. For detailed information on the species of concern, which could potentially be affected by the proposed tunnel, please refer to the 1999 Biological Assessment.

### **4.1 Wildlife Species Of Concern**

#### **4.1.1 Peregrine Falcon (*Falco peregrinus anatum*)**

The peregrine falcon is a State endangered and a former federal endangered species (CDFG, 1998;USFWS, 1998a). This species was removed from the federal list of endangered and threatened wildlife on August 25, 1999 (USFWS, 1999a). Mitigation measures are still required for this species based on Section 7 of the Endangered Species Act regarding the responsibilities of Federal agencies (Pine, pers. comm., 1999).

An active peregrine falcon eyrie is located west of State Route 1 on the south side of the Devils Slide promontory (see Exhibit D of the 1999 Biological Assessment). The proposed tunnel would relocate State Route 1 farther away from the existing nest site and thereby reduce potential permanent effects of the highway. After the State relinquishes the existing highway right-of-way along Devils Slide, it is expected that the old roadway across the face of the slide will be closed to vehicular traffic. However, a small section could remain as a cul-de-sac and could possibly be used as a parking area for visitors. Presently, due to safety reasons,

pedestrian use is very limited because parking is not allowed on either side of the existing highway through the slide area. With vehicles excluded from the existing road and the provision of parking areas, it is expected that the area will be subject to increased use by hikers. However, the potential effects of hikers and sightseers are not considered to be significant due to the location of the eyrie on the sheer, inaccessible sea cliff.

The project site is within the foraging territory of the nesting pair at the Devils Slide promontory. However, since the preferred alternative will relocate much of this section of State Route 1 inside a tunnel and, due to the fact that the peregrine falcon is an aerial predator, the proposed tunnel is expected to have almost no effect on foraging activities.

Construction activities associated with the preferred alternative have the potential to temporarily affect nesting activities of the peregrine falcon. The south portal of the tunnel would be located approximately 1219 meters (4,000 feet) from the existing nest. This distance would seem to be sufficient to avoid any construction effects during the January through July nesting period. However, it is uncertain how blasting and other tunneling operations might affect the birds.

Nest monitoring is typically required for projects that could affect the nesting activity of peregrine falcons. If such monitoring determines that project activities are interrupting egg incubation or care and feeding of the chicks, it might be necessary to suspend certain construction activities until the chicks have fledged.

In lieu of that rather drastic step, the eggs or chicks might be removed from the nest. If the eggs were removed, they would be artificially incubated at a facility, such as that operated by the SCPBRG, and any chicks that hatched out would then be hacked-out to occupied nests. In the event that construction activities were conflicting with the raising of nest-hatched chicks, those chicks might be removed and hacked-out to other nests. With such a monitoring program in place, the proposed tunnel is not likely to adversely affect the peregrine falcon.

Mr. Brian Walton (pers. comm., 1996) has suggested an alternative to active monitoring. His suggestion involves the contribution of up-front funds for the implementation of a multi-project hacking program coordinated with, and approved by, the USFWS. This strategy would preclude the necessity of nest monitoring and possible construction delays while providing a positive mitigation measure to benefit this species. In this case, if the project provided funds for such a program, the alternative is likely to benefit the peregrine falcon.

#### CUMULATIVE EFFECTS

Projects are currently underway to retrofit the San Francisco/Oakland Bay Bridge, the Richmond/San Rafael Bay Bridge, and the Hayward/San Mateo Bridge. Additional projects are being developed to widen the Hayward/San Mateo Bridge and to construct a new east span of the San Francisco/Oakland Bay Bridge. All of these projects could adversely effect the falcon, particularly during the construction phases. However, these projects include, or will implement, mitigation measures similar to those discussed above for the tunnel alternative, so no cumulative adverse effects on peregrine falcon are expected.

#### **4.1.2. Mission Blue Butterfly (*Plebejus icarioides missionensis*)**

The mission blue butterfly is listed as a federal endangered species (USFWS, 1998a). This butterfly is known only from Twin Peaks in San Francisco, Fort Baker in Marin County, plus San Bruno Mountain, Milagra Ridge, and scattered locations around Skyline College in San Mateo County (Arnold, 1995).

The larval foodplants of the mission blue butterfly were not found on the project site during the 1997 plant surveys. Crucial habitat elements for the mission blue butterfly are totally absent in the project area of the preferred alternative. Furthermore, no life forms of the mission blue were observed during any field surveys; therefore, the proposed tunnel is not likely to adversely affect the mission blue butterfly.

#### **4.1.3 San Bruno Elfin Butterfly (*Callophrys mossii bayensis*)**

The San Bruno elfin butterfly is a federal endangered species (USFWS, 1998a) found only in northern San Mateo County on San Bruno Mountain, Montara Mountain, and Milagra Ridge. In 1986, Dr. Richard Arnold conducted a field survey for the San Bruno elfin butterfly in the vicinity of the original inland bypass, including a survey for the butterfly's foodplants. That survey determined that a population of the San Bruno elfin butterfly is located on Montara Mountain (Arnold, 1986). The stonecrop distribution was mapped in 1986 and is depicted in Figure 3 of Appendix 6 of the 1999 Biological Assessment. Only two elfin adults were observed nectaring during the 1986 study. They were found on Montara manzanita (*Arctostaphylos montaraensis*) at the saddle between San Pedro and Montara Mountains.

Dr. Arnold conducted field surveys again in 1995 and 1996 to update the findings of the 1986 survey. Results of the 1995 and 1996 San Bruno elfin butterfly surveys corroborate the findings of the 1986 survey (Arnold, 1995; 1996). There were no major changes in the distributions of the larval or adult foodplants over that decade. Life forms of the butterfly and stonecrop, the larval foodplant, were not found within the right of way for the project. The detailed results of these surveys are provided in Dr. Arnold's 1995 and 1996 reports, attached as Appendices 5 and 4, respectively in the 1999 Biological Assessment.

Neither the San Bruno elfin butterfly, nor its crucial foodplant, were found within the proposed right of way for the tunnel alternative or its immediate vicinity during the 1997 field surveys. Furthermore, almost half (45%) of the alternative's length would be underground. These factors combine to reduce potential secondary effects of the proposed tunnel, such as those from dust and automobile exhaust, to this species. Therefore, the preferred alternative is not likely to adversely affect the San Bruno elfin butterfly.

#### **4.1.4 California Red-Legged Frog (*Rana aurora draytonii*)**

The California red-legged frog is listed as a federal threatened species (USFWS, 1998a). This species is also designated as a State of California "Species Of Special Concern" (CDFG, 1998). This frog was first found in the project area by Dr. Samuel McGinnis (1996; Appendix 3 of the 1999 Biological Assessment) during his 1995 field surveys for the withdrawn inland bypass

alternative. Populations of the frog were documented at the two Shamrock Ranch ponds in the northern part of the project area (see Exhibit E of the 1999 Biological Assessment). Individuals of this species were also found in two small pool sites along the course of Green Valley Creek (McGinnis, 1996). In 1997-98, Dr. McGinnis conducted a second study of the Shamrock Ranch ponds and the upland areas around the north pond in conjunction with the impact analysis for the preferred tunnel alternative.

Dr. McGinnis (1998a) found that a small population of adult California red-legged frogs occupies the seasonal north pond from the time it fills during the rainy season until it dries in late summer or early fall. When the pond basin had almost dried in October, frogs were no longer observed anywhere within the high water edge of the pond. However, inspection of the upland area beyond the shoreline revealed the presence of two red-legged frogs within the entrance of separate rodent burrows. These burrow retreats were found in the embankment on the north side of the pond. This finding and similar field survey observations made by Dr. McGinnis and other Bay Area herpetologists support the corollary that the presence of burrow retreats near a breeding pond site may be an essential habitat element for this amphibian.

During the 1997-98 survey period, no evidence of frog presence was observed within the west and southwest valleys adjacent to the north pond even though drift fences and track plates were placed to detect frog movement into these areas (McGinnis, 1998a). The survey report in Appendix 2 of the 1999 Biological Assessment provides a detailed discussion of this tracking effort.

It appears likely that either emigration or estivation, or both, are employed by frogs at the seasonal north pond as it dries. A relatively large population of adult California red-legged frogs is currently present throughout the year at the permanent south pond. In support of the supposition that north pond frogs may emigrate to nearby permanent aquatic sites, such as the south pond, is the fact that periods of evening and early morning fog in the Pacifica area create a favorable osmotic environment for amphibian movement. The existing lush vegetative ground cover between the ponds would further enhance the likelihood of such movement. It is therefore possible that some north pond frogs use olfactory cues to orient toward, and then move to, the south pond. One indication that such annual movements might take place was the marked increase in adult California red-legged frog sightings at the south pond during late summer in 1997 (McGinnis, 1998a).

There was no evidence of successful frog reproduction at either Shamrock Ranch pond in 1997. Egg and larval predation by water birds and raccoons (north pond) and egg predation by introduced koi carp (south pond) appear to be the most likely causes for these reproductive failures. Dr. McGinnis (1998a) suggests that this apparent total reproductive failure at both ponds, coupled with the on-going effects of shoreline stock grazing and attendant siltation at the north pond, combine to create a most uncertain future for the California red-legged frog populations at Shamrock Ranch.

At Green Valley Creek (see Exhibit E of the 1999 Biological Assessment), individual adult red-legged frogs were observed in two small pool areas. These frogs are probably members of small populations that occasionally inhabit the creek pools (McGinnis, 1996). During a field

survey by Caltrans biologists in the spring of 1997, an adult red-legged frog was observed on the shore of a very small pond adjacent to Green Valley Creek just east of the base of the existing State Route 1 roadway embankment. A field review of this same small pond in the spring of 1998 found that the pond had been severely disturbed by the massive movement of sediment through the drainage during the El Nino storms of the winter of 1997-98. No California red-legged frogs were observed at this site in 1998.

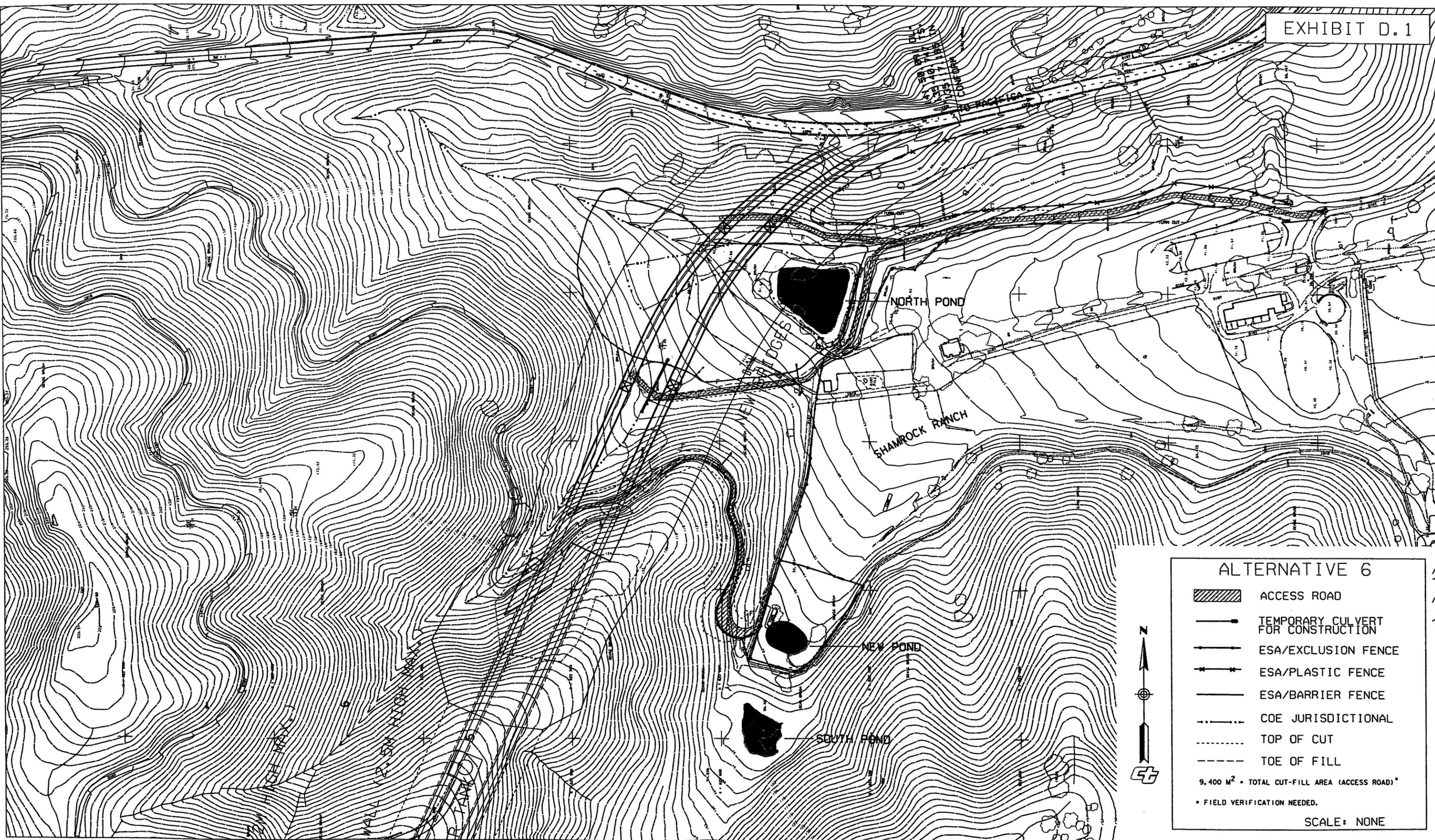
#### *SHAMROCK RANCH*

The preferred alternative will not result in any adverse impacts to the south pond and its associated drainages. With regard to the north pond, one of the original design variations for the tunnel alternative included a large fill across the upper end of Shamrock Ranch. That design would have resulted in potential fill impacts to the north pond and direct loss of portions of its adjacent uplands and associated upstream drainages. However, as a result of input received through the Integrated NEPA/404 Process and subsequent informal consultation between Caltrans and USFWS biologists, that fill variation has been rejected. The tunnel alternative now includes bridge structures to clear-span the north pond and its associated wetlands and drainages. Therefore, the tunnel alternative will not result in fill impacts to those resources.

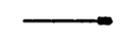
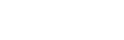
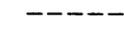
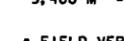
An Environmentally Sensitive Area (ESA) was developed in consultation with USFWS biologists to protect red-legged frog habitat (see Exhibit D). The ESA will be off-limits to construction personnel and no vehicles, construction materials, falsework or other ground disturbances will be permitted within the ESA. Access to the various construction sites on Shamrock Ranch will be restricted to temporary access roads that will be constructed outside the ESA. Seven alternatives for the construction access roads have been evaluated in a preliminary assessment. Alternative 6 and Alternative 7 have been selected as being the least environmentally damaging (see Exhibit D).

As noted in Section 2.0, Project Description, in order to avoid direct impacts to the ESA, the segmented balanced cantilever method will be used to construct the bridges. The bridge piers and abutments, all located outside the ESA, would be constructed first and the superstructure between the north and south piers would be advanced by cantilevering out from the piers. Falsework could be utilized to support counterbalancing superstructure outside the ESA between the piers and their adjacent north and south abutments. Since the field survey determined that the hillside areas northwest and southwest of the north pond, where the bridge piers would be located, are not included within the home range of the Shamrock Ranch California red-legged frog population, no significant adverse impacts are anticipated.

Construction activities associated with the tunnel alternative may temporarily eliminate a small area of potential terrestrial foraging and retreat habitat in the south and west upper shoreline areas at the north pond. However, as stated previously, the 1997 field survey by Dr. McGinnis did not record any frog movement into these areas. The only evidence of frog movement on the south shoreline perimeter of the pond was in the southeast sector (McGinnis 1998a), away from the proposed alignment. A direct adverse impact to the north pond could occur if oil, fuel, or other pollutants were accidentally spilled during construction and allowed to eventually



ALTERNATIVE 6

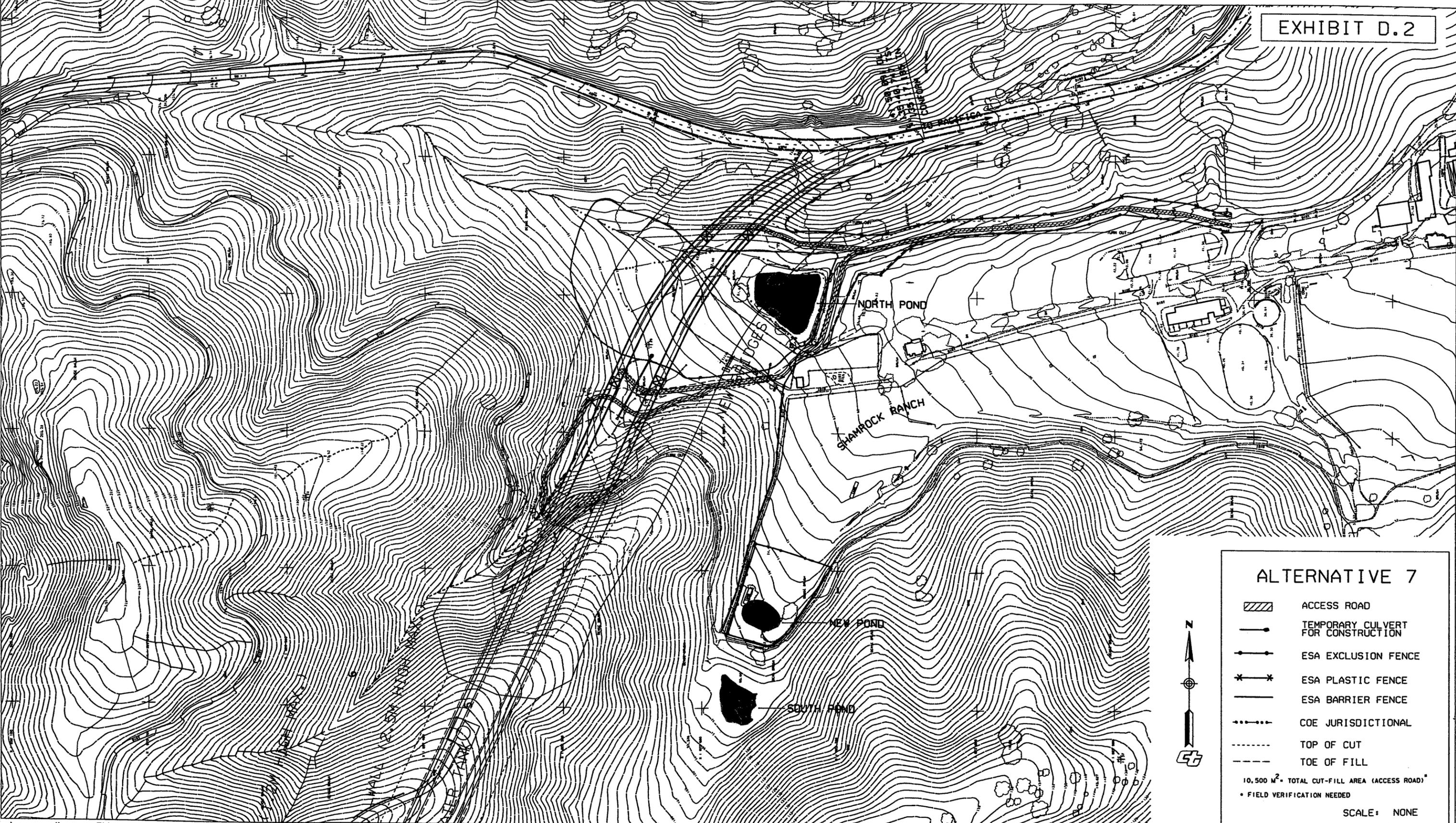
-  ACCESS ROAD
-  TEMPORARY CULVERT FOR CONSTRUCTION
-  ESA/EXCLUSION FENCE
-  ESA/PLASTIC FENCE
-  ESA/BARRIER FENCE
-  COE JURISDICTIONAL
-  TOP OF CUT
-  TOE OF FILL



9,400 M<sup>2</sup> = TOTAL CUT-FILL AREA (ACCESS ROAD)\*

\* FIELD VERIFICATION NEEDED.

SCALE: NONE



**ALTERNATIVE 7**

-  ACCESS ROAD
-  TEMPORARY CULVERT FOR CONSTRUCTION
-  ESA EXCLUSION FENCE
-  ESA PLASTIC FENCE
-  ESA BARRIER FENCE
-  COE JURISDICTIONAL
-  TOP OF CUT
-  TOE OF FILL

10,500 M<sup>2</sup> TOTAL CUT-FILL AREA (ACCESS ROAD)  
 • FIELD VERIFICATION NEEDED

SCALE: NONE



enter the pond basin. Such an event could harm all life stages of the frog and therefore must be considered a potentially significant adverse impact. In addition, potentially significant adverse indirect impacts could occur if winter runoff bearing soil particles generated by the construction activities were permitted to enter the north pond basin, adding to siltation of the pond.

Finally, noise and ground vibration accompanying construction activities must be considered as potentially significant adverse impacts that could affect the frog's use of the north pond as well as estivation and migration areas along the pond shores. No significant impacts from dust are anticipated because Caltrans imposes stringent requirements to limit dust during construction in areas of human habitation.

A list of the construction vehicles that could be used to construct the project is provided in Appendix 7 of the 1999 Biological Assessment. It may be necessary to pave the temporary access roads to accommodate heavy construction vehicles, but any pavement would be removed after completion of the project unless the property owner wanted to retain the roads.

With mitigation measures implemented as part of the tunnel alternative, the potential impacts discussed above would be avoided or reduced to non-significant levels. For a detailed discussion of the mitigation measures, please refer to the 1999 Biological Assessment.

#### *GREEN VALLEY*

The preferred alternative will not affect Green Valley. In order to prevent any encroachment into the Green Valley drainage during construction of the disposal site and the Tunnel Operations and Maintenance Center, this drainage will be designated as an Environmentally Sensitive Area (ESA). A silt fence barrier will be installed between the south disposal area and Green Valley. This barrier will remain in place until disposal site slopes are fully stabilized by replacement vegetation. The preferred alternative is not likely to adversely affect the California red-legged frog in Green Valley.

#### CUMULATIVE EFFECTS

As previously stated, with mitigation measures proposed for the preferred alternative, no permanent adverse effects to the frog are expected. Two other highway projects in San Mateo County are expected to affect the California red-legged frog: 1) the State Route 92 Safety and Improvement Project (currently under construction) and 2) the Crystal Springs Dam Bridge Replacement Project. With respect to the State Route 92 Project, individual California red-legged frogs were observed by Caltrans biologist, Richard Vonarb, on three different occasions in the Albert Canyon Creek tributary to Pilarcitos Creek. The Route 92 Project is presently in the process of fulfilling Section 7 consultation requirements pursuant to the Endangered Species Act. With mitigation measures planned, no long-term effects will result. A breeding population of the California red-legged frog will be affected by the Crystal Springs Dam Bridge Project. A Biological Opinion has now been issued that concludes that the Crystal Springs Dam Bridge Replacement Project is not likely to jeopardize the continued existence of the California red-legged frog or the San Francisco garter snake (USFWS, 1999b).

A third project along State Route 92 between the junctions with State Route 35 south and State Route 35 north, through the watershed for the San Francisco Water Department's Crystal Springs Reservoirs, is currently undergoing environmental evaluation by Caltrans. This project would provide an uphill climbing lane for slow vehicles as well as other safety improvements. In 1997, Dr. McGinnis conducted trapping surveys for the frog in the vicinity of this project, and he is currently finalizing a report documenting the results of his study. No California red-legged frogs were found within the area of direct impact for the project (McGinnis, 1998b). However, there is the remote possibility for impacts during the operational phase of the project in the event of a spill of toxic material on State Route 92 within the limits of the project.

The Route 92 East project is designed so that all pavement runoff within the project limits will be collected and directed into detention basins and thereby prevented from entering the San Francisco drinking water supply. In response to such an event, toxic material would be held in these basins for collection and treatment. Two of these basins are existing basins, connected in series, that were installed at the time Interstate 280 was constructed. Dr. McGinnis recorded individual California red-legged frogs in one of these existing basins on two occasions. There is no indication that the frogs are breeding at the basin and it does not contain water long enough through the year to allow for the complete metamorphosis of tadpoles. Regardless, the probability of such a spill is quite low and in most cases cleanup response and dilution factors would minimize potential impacts if adult frogs were occupying the pond at the time of an incident.

Considering all of the above factors, no cumulative adverse effects to the California red-legged frog are expected as a result of these projects in combination with the tunnel alternative.

#### **4.1.5 San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*)**

The San Francisco garter snake is listed as a federal and State endangered species (USFWS, 1998a; CDFG, 1998). This snake is endemic to the San Francisco Peninsula and historically has been found from approximately the San Francisco County line south along the eastern and western bases of the Santa Cruz Mountains to Ano Nuevo Point (Berry, 1978). The San Francisco garter snake is now known only from San Mateo County (McGinnis, 1987).

Dr. McGinnis conducted a 1995 field survey of portions of the project vicinity for San Francisco garter snake in areas that provide the most suitable habitat. The San Francisco garter snake was not trapped or observed during the 1995 field survey. The lack of any San Francisco garter snake captures or sightings, even though suitable habitat appears to be present, is not unusual for ranch pond habitats in coastal San Mateo County (McGinnis, 1996). Only three (3) Santa Cruz garter snakes and nine (9) coast garter snakes (*Thamnophis elegans terrestris*) were captured at the Shamrock Ranch ponds during the three-month study. It appears that the reason that San Francisco garter snake is not present, even though suitable habitat exists, is the inaccessibility of the habitats to San Francisco garter snake populations in nearby drainages (McGinnis, 1996).

In the case of the Shamrock ponds, the San Pedro Mountain complex represents a formidable barrier separating the ponds from the nearest reported population to the south, about 6.4 kilometers (4 miles) away at Denniston Creek. Closer historic population sites do exist at Sharp Park, about 4 kilometers (2.5 miles) to the north, and Calera Creek, about 3.2 kilometers (2.0 miles) north. However, there are again formidable barriers in the form of human development and rugged upland areas and no north-south connecting drainages between the Shamrock Ranch ponds and these two sites. Thus, even though impoundments with high potential for supporting this species were constructed at the Shamrock Ranch site about 40 years ago, immigration by wandering individuals from the above populations during this time span is most unlikely (McGinnis, 1996).

The last potential source of San Francisco garter snake colonization is the nearby San Pedro Creek drainage. However, Dr. McGinnis surveyed this creek in 1992, using a three-month trapping procedure identical to the 1995 survey at Shamrock Ranch, and no San Francisco garter snakes were captured or observed even though numerous coast garter snakes and several Santa Cruz garter snakes were captured (McGinnis, 1992). In addition, this creek, like many other coastal drainages, has no sizable, quiet pool areas that could be expected to support a large population of red-legged frogs. This finding lends final support for the conclusion that, although habitat conditions are very favorable to the San Francisco garter snake at the south pond on the Shamrock Ranch, no specimens exist there due to the lack of a nearby population that might supply colonizing individuals (McGinnis, 1996).

The San Francisco garter snake was not found during any of the field surveys being conducted for the California red-legged frog between 1997 and 1998. In addition, this species was not found during any of the other biological field studies, including plant and wildlife surveys, in 1997.

Since the field survey results indicate that the San Francisco garter snake is not present at the Shamrock Ranch pond areas, the preferred alternative is not likely to adversely affect this species.

## **4.2 Plant Species Of Concern**

### **4.2.1 Montara Manzanita (*Arctostaphylos montaraensis*)**

The Montara manzanita is a federal species of concern (USFWS, 1998a) and a List 1B species, a rare and endangered plant with limited distribution, in the *Inventory of Rare and Endangered Vascular Plants Of California* (CNPS, 1994). Montara manzanita was not found within the proposed tunnel alternative right-of-way or immediate project vicinity during the 1997 plant surveys.

Historic locations for this species have been documented on Montara Mountain, and Caltrans biologists identified an occurrence of the species during plant surveys conducted in 1983 for the inland bypass (see Exhibit H of the 1999 Biological Assessment). The plant was found 55

to 125 meters (180 to 410 feet) east of and outside the Caltrans right-of-way for the inland bypass at the saddle between San Pedro and Montara Mountains. The 1995-96 field surveys recorded the population in the same areas where it was found in 1983.

Since the Montara manzanita is not located within the proposed tunnel alternative right-of-way or immediate project vicinity, the preferred alternative will not affect this species.

#### **4.2.2 Hickman's Cinquefoil (*Potentilla hickmanii*)**

Hickman's cinquefoil is a State endangered species (CDFG, 1993) and was recently listed as a federal endangered species (USFWS, 1998b). The Hickman's cinquefoil is also designated as a List 1B species, a rare and endangered California plant, in the *Inventory of Rare and Endangered Vascular Plants Of California* (CNPS, 1994). The historic range of this species was from Sonoma County to Monterey County. Before 1995, the only known extant population was found at the Indian Village site in Monterey County (Jones & Stokes Associates, 1995).

In San Mateo County, before 1995, this species was known from only a single historic map location near the outfall of San Vicente Creek at Moss Beach, last documented in 1933 (CDFG, 1998). This population site is now considered extirpated due to developmental pressures and erosion (Gankin, pers. comm., 1988; CDFG, 1998).

During the 1995 spring plant surveys, a new population of Hickman's cinquefoil was identified in the project area by a team of Caltrans biologists, led by Richard Vonarb. This species was found growing in grassland on hills above Martini Creek (see Exhibit I of the 1999 Biological Assessment). The CDFG was notified of the discovery, and Dr. Barbara Errter, of the University of California Jepson Herbarium, confirmed the identification of this endangered plant species during a field meeting on June 21, 1995.

Since the Hickman's cinquefoil is not located within the proposed right-of-way for the preferred alternative or its immediate vicinity, the tunnel alternative will not adversely affect this species.

#### **4.3 Wetlands And Riparian Habitat**

At the north end of the project area for the tunnel alternative, wetlands and riparian habitat are found in association with two stock ponds and several drainages located on Sharmrock Ranch property. The north stock pond is dominated by rushes and tule, while the south stock pond is dominated by willow. The wetlands and riparian vegetation of the stock ponds provide habitat for the California red-legged frog. With avoidance mitigation measures planned as part of the proposed project, there will be no loss of wetlands and riparian habitat at the north end. For a detailed discussion of the mitigation measures, please refer to Section 5.1.4 of the 1999 Biological Assessment.

The tunnel alternative will eliminate an estimated total of 511 square meters (5,500 square feet) of wetlands. This total wetland area comprises a little over 0.05 ha (1/10 acre) and would include wetlands associated with the south portal drainage area and the fill disposal site drainage area (see Appendix 1).

An estimated total of 269 square meters (2,900 square feet) of wetlands in the south portal drainage area will be filled by the tunnel alternative. The affected wetlands of the south portal drainage area consist of a seasonal wetland depression and a wetland drainage. The seasonal depression on the east side of Route 1 at the south portal drainage has formed due to a change in the topography and hydrologic regime after an above ground culvert riser was built to trap sediment and protect the culvert under the existing Route 1 roadway. The culvert riser allows water to collect in a depressional area under the inlet. The hydrophytic vegetation found in this seasonal depression, which does not form a dense cover due to annual sedimentation from the south portal drainage above, includes poison hemlock (*Conium maculatum*), stream monkey flower (*Mimulus guttatus*), and loosestrife (*Lythrum hyssopifolia*). The drainage, which flows from the hills above into this depressional area, contains strips of wetlands. In an average rain year, the water in this depression dries early in the spring so it is not good habitat for amphibians. However, this site does have isolated value due to the lack of freshwater ponds and depressions in the local area because of the steep hills and mountains.

At the drainage area of the fill disposal site, an estimated total of 242 square meters (2,600 square feet) will be filled in by rock and soil excavated for the tunnel. The wetlands, that would be affected at the fill disposal site, consist of a seasonal wetland depression and a seasonal wetland pond. The seasonal depression has also formed due to an above ground culvert inlet riser located on the east side of the existing Route 1 roadway. The hydrophytic vegetation growing in the depression contains cut-leaved plantain (*Plantago coronopus*), lowland cudplant (*Gnaphalium palustre*), sneezeplant (*Helenium puberulum*), and willow (*Salix spp.*). The water in this depression also dries early in the spring during an average rain year; however, as in the case of the south portal depression, this site does have isolated value due to the lack of freshwater ponds and depressions in the local area. The seasonal wetland pond is located uphill in the fill disposal site and has formed in the bench created by the abandoned, old county road. The water of this seasonal pond lasts into the summer and provides habitat for amphibians such as Pacific tree frog which was observed in this pond. The pond edge contains rush (*Juncus sp.*). For wildlife other than amphibians, the habitat value is lower because the riparian cover is lacking resulting in almost no refuge or perching areas, but it does possess additional value because it provides a source of water late into the season during average rain years.

In addition to wetlands, riparian habitat will also be affected by the tunnel alternative. It is estimated that 901 square meters (9,700 square feet) of riparian habitat will be eliminated as a result of the proposed project. This loss of riparian habitat is approximately 0.09 ha (1/5 acre) and is dominated by willow. The riparian habitat is found in association with the seasonal depressions located at the south portal drainage area and the fill disposal drainage area.

A riparian and wetland mitigation site is planned as part of the tunnel alternative in order to replace riparian and wetland habitat eliminated as a result of the project. Two mitigation site options are now being considered. One option consists of the enlargement of the existing ponding seasonal pond that is located uphill in the fill disposal site and has formed in the bench created by the abandoned, old county road (see Page 2 of Appendix 1). The second option also involves the enlargement of an existing wetland drainage south of the project site on the east side of Route 1 across from the Charthouse Restaurant (see Appendix 2). For this option, property would have to be purchased and protected in perpetuity. Either mitigation site could provide enough area to replace wetland and riparian habitat eliminated as a result of the project.

After a mitigation site is chosen from the two options, a conceptual mitigation plan will be prepared for the mitigation site/s in coordination with the USFWS, the CDFG, the COE, and the San Mateo County Planning Department. A plant establishment and maintenance program will be conducted for three years. A biologist will monitor the mitigation site/s at the end of each growing season for five years. Caltrans will be responsible for the establishment and care of the mitigation site until the resource agencies determine that the replacement is successful.

With a wetland and riparian mitigation site/s planned as part of the proposed project to replace habitat eliminated as a result of the project, the impact to riparian and wetland habitat will not be significant.

#### **4.4 Coastal Scrub/Grassland**

The tunnel alternative will affect approximately 9 Ha (22.5 acres) of coastal scrub/grassland as a result of the project. Since coastal scrub and grassland species will be planted as part of the revegetation plan of the tunnel alternative, this impact is not considered significant.

#### **4.5 Construction**

The tunnel alternative will result in cuts, fills, and earth disturbances on areas within the project site. The following mitigation measures are required to reduce potential significant impacts to species of concern, wetlands, and the Pacific Ocean marine environment to non-significant levels:

1. All mitigation measures stipulated in the 1999 Biological Assessment for species of concern will be included as part of the proposed project.
2. All construction activities involving grading, clearing, soil disturbance, and excavation work must be conducted between May 1<sup>st</sup> and October 15<sup>th</sup>. After October 15<sup>th</sup>, exposed areas will be covered during the winter. This mitigation measure will minimize exposure of bare and disturbed soil during the rainy season. Construction may proceed for a specified period after October 15<sup>th</sup> if prior approval is obtained from the CDFG, the USFWS, and the NMFS, and a water quality monitoring program is conducted.

3. Due to the steep slopes and the large area of the watershed, site specific Storm Water Pollution Prevention Plan (SWPPP) measures must be formulated and implemented to minimize construction-related runoff. In addition, since threatened and endangered species are present on the project site and in the adjacent area, the SWPPP must be sent to the Office of Environmental Planning, South (Biology) for review and approval prior to implementation, in order to protect species of concern habitat. In order to assess storm water pollution effects caused by construction activities during rains that fall between May 1<sup>st</sup> and October 15<sup>th</sup>, a water quality assessment program to measure storm water pollution will be formulated and approved by the District Biologist before any construction activities begin. This program will place a special emphasis on the pond habitats for the California red-legged frog located on the Shamrock Ranch. The preliminary plan for the water quality assessment program will also be sent to the USFWS, the CDFG, and the NMFS for review and approval.

4. If construction monitoring shows that unexpected adverse impacts, such as excavated soil or slurry accidentally falling into a wetland drainage or pond area, then construction in the affected area will be halted until the responsible resource agencies are contacted with an assessment of the impact, and the agencies approve of the course of action and methods needed to address the adverse impact.

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## **6.0 PERSONS CONTACTED**

Acob, Romy. Project Engineer, Caltrans Project Development – Peninsula. Pers. comms., 12/98 – 1/99.

Gankin, Roman. Principal Planner, San Mateo County Planning Department - Dept. of Env. Management. Pers. comm., 7/88.

Pine, Robert. Supervisor, U.S. Fish and Wildlife Service. Pers. comm., 9/99.

Vandenburg, Matt. Biologist, U.S. Fish & Wildlife Service. Pers. comms., 2/95 and 5/95.

Walton, Brian. Coordinator, Predatory Bird Research Group. Pers. comm., 9/96.

## **7.0 PREPARER**

Richard Vonarb, Associate Environmental Planner (Natural Sciences); B.S., Natural Resources Management, Environmental Services Concentration, Cal Poly State University - San Luis Obispo. Twelve years experience in environmental planning and biological research.

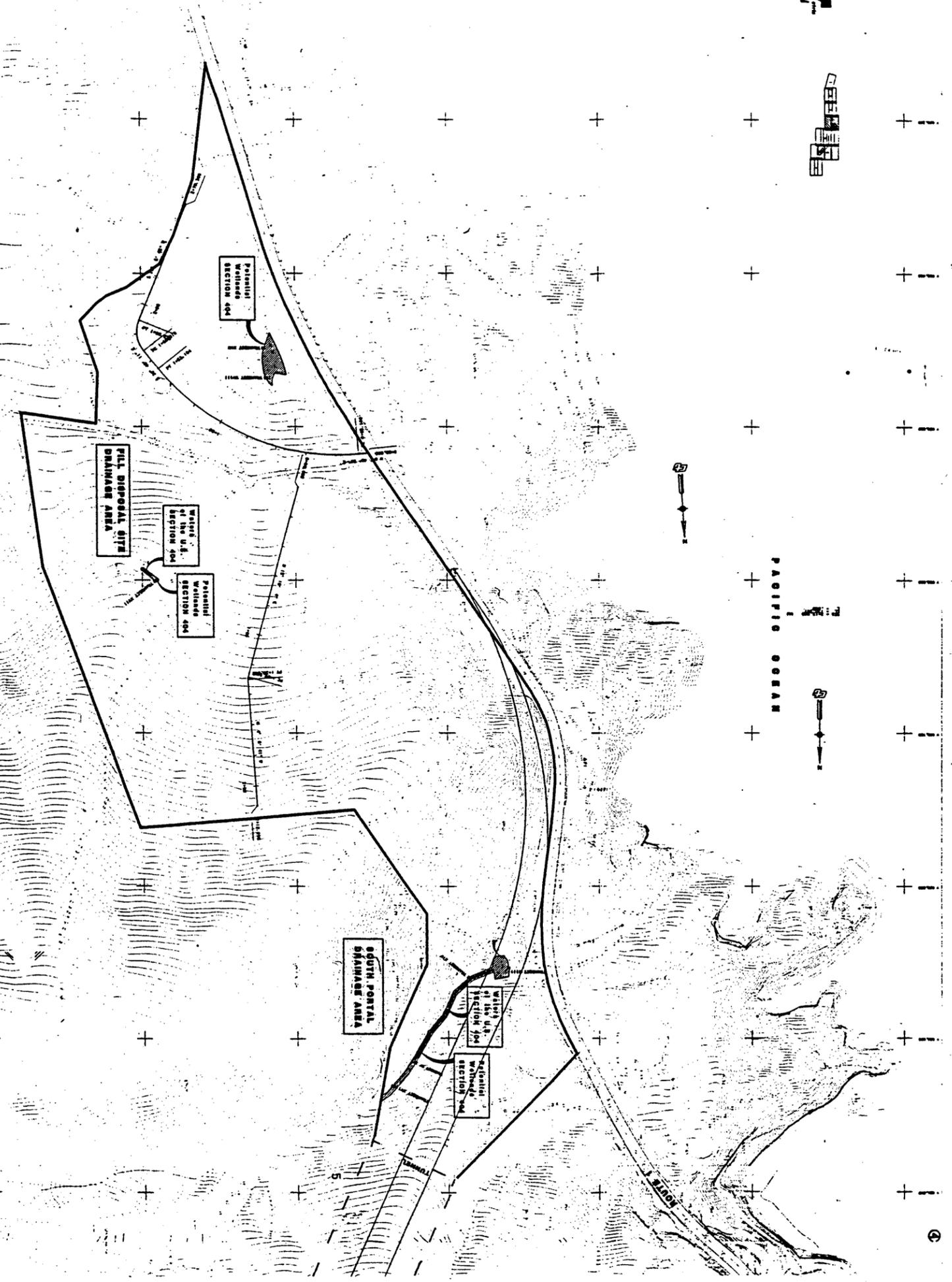


**APPENDIX 1**

**U.S. Army Corps Of Engineers Jurisdictional Areas On The Tunnel Project Site**



PACIFIC OCEAN



**HEM**  
US Army Corps  
of Engineers  
San Francisco District  
Regulatory Branch

California Department of Transportation  
Devil's Slide Bypass Project (Tunnel)  
San Mateo County, California



PROJECT STUDY AREA



STUDY PLOT NUMBER



POTENTIAL WATERS OF THE U.S.  
SECTION 404

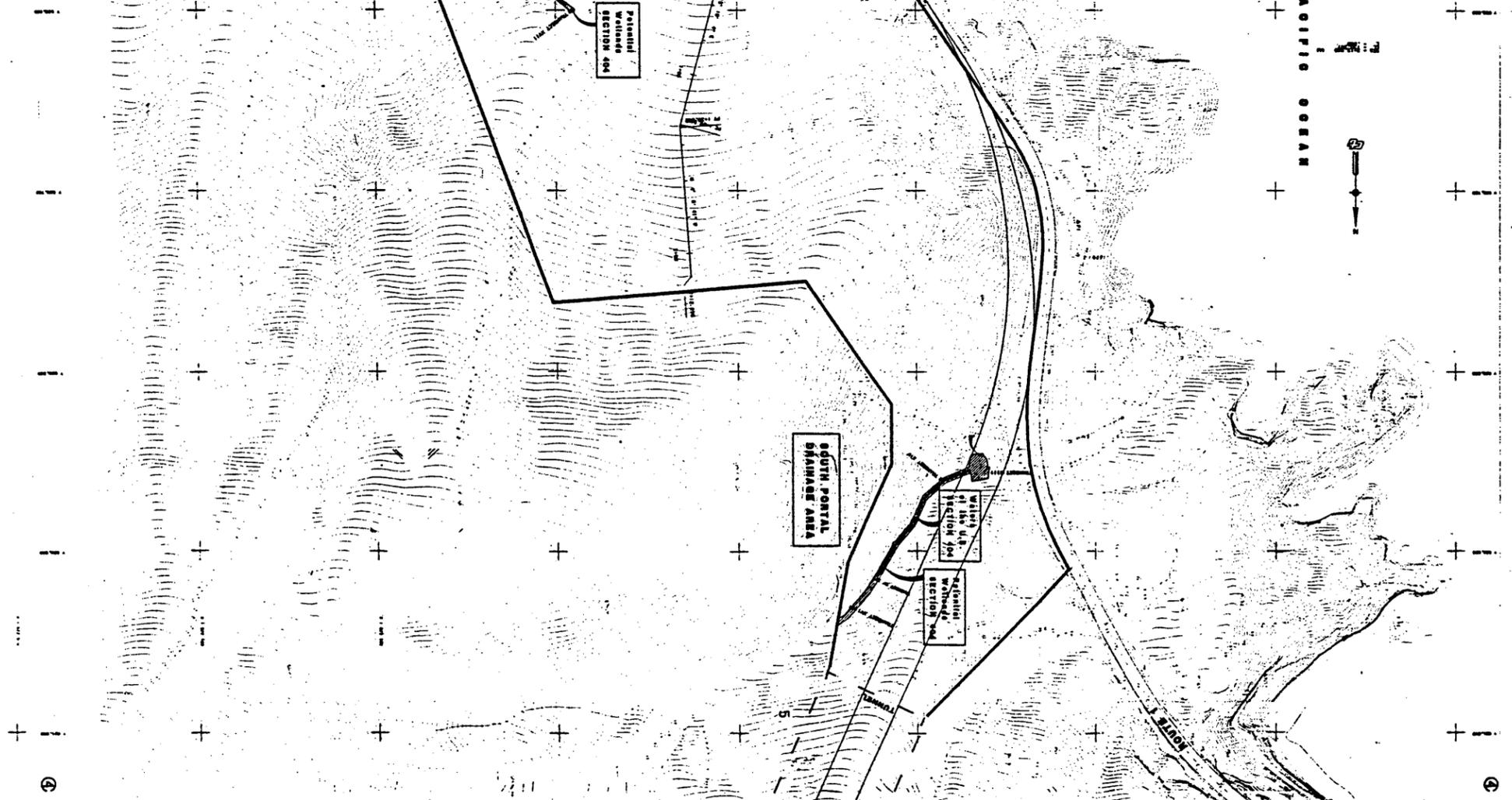


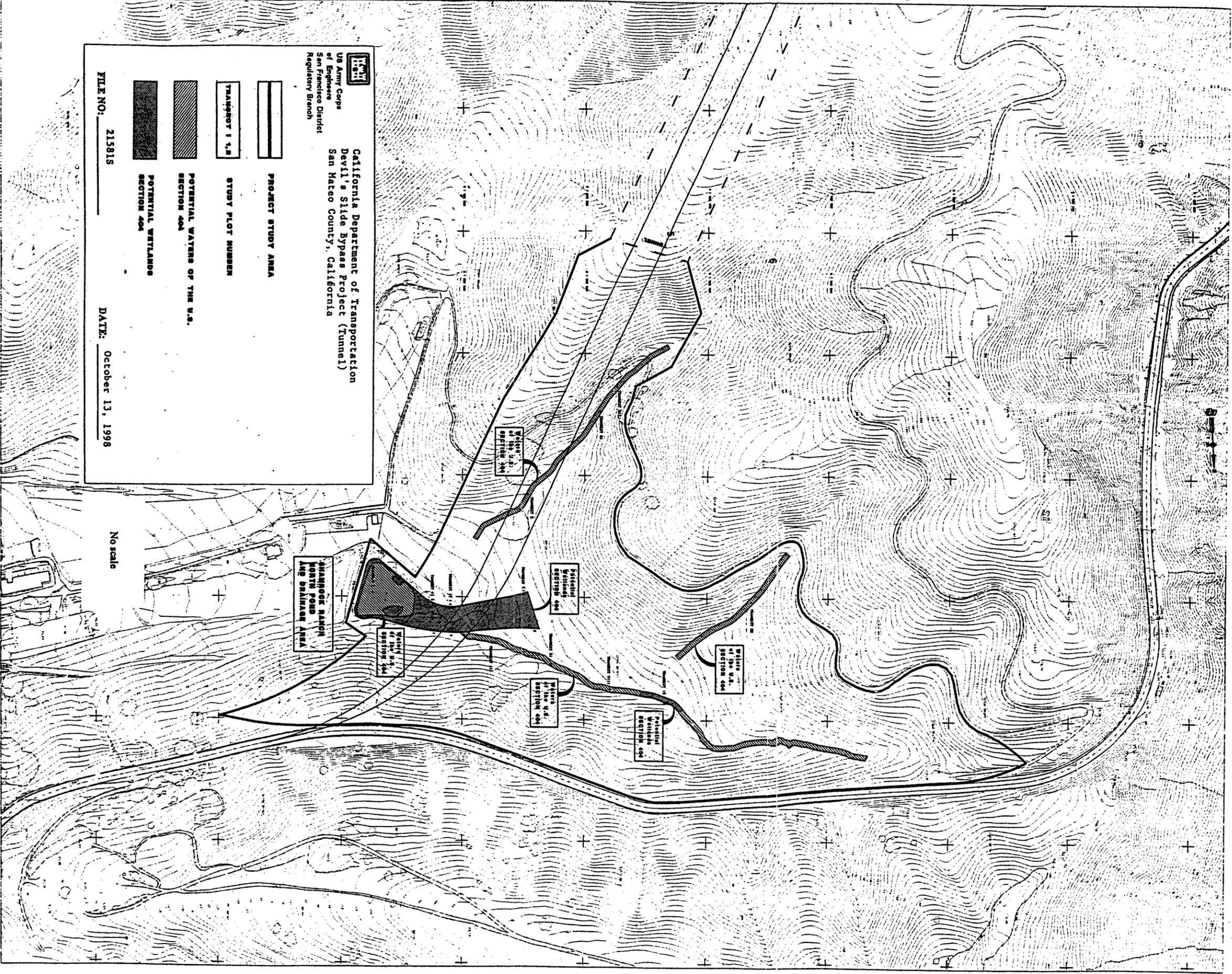
POTENTIAL WETLANDS  
SECTION 404

FILE NO: 215818

DATE: October 13, 1998

No scale





California Department of Transportation  
 Devil's Slide Bypass Project (Tunnel)  
 San Mateo County, California

PROJECT STUDY AREA

STUDY PLOT NUMBER

POTENTIAL WATERS OF THE U.S.  
 SECTION 404

POTENTIAL WETLANDS  
 SECTION 404

FILE NO: 21581S

DATE: October 13, 1998

AVANHOOT RANCH  
 NORTH POND  
 AND DRAINAGE AREA

Section of the U.S.  
 Section 404

Section of the U.S.  
 Section 404

Section of the U.S.  
 Section 404

Potential Wetlands  
 Section 404

Section of the U.S.  
 Section 404

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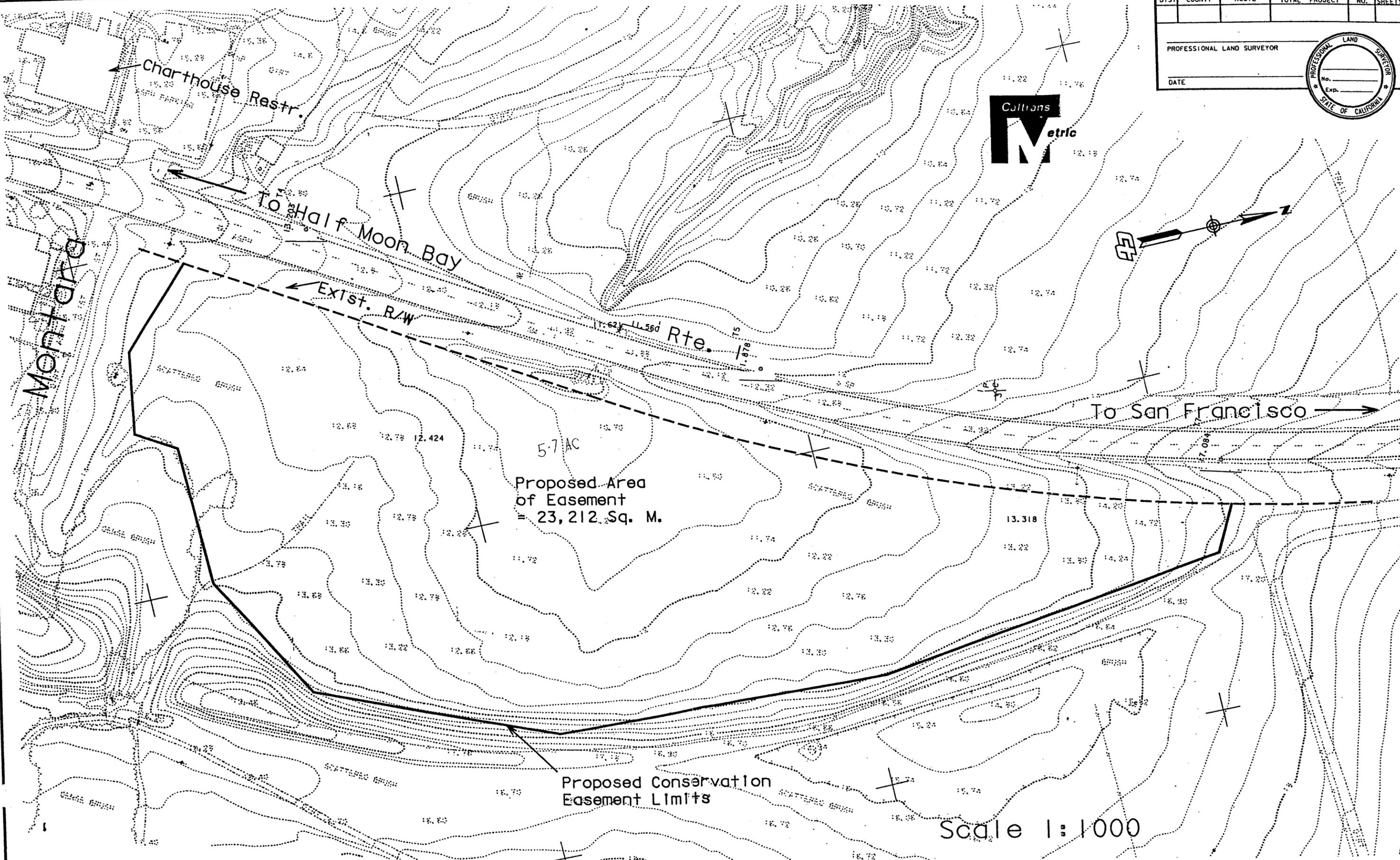
**APPENDIX 2**

**Mitigation Site Option 2 Location**

DIST	COUNTY	ROUTE	POST TOTAL	MILES PROJECT	SHEET NO.	TOTAL SHEETS

PROFESSIONAL LAND SURVEYOR

DATE



Montana

Charthouse Restr.

To Half Moon Bay

EXTST. R/W

Rte.

To San Francisco

5.7 AC  
Proposed Area of Easement  
= 23,212 Sq. M.

Proposed Conservation Easement Limits

Scale 1:1000