

The logo for TAM (Transportation Authority of Marin) features the letters 'TAM' in a blue, serif font. The letters are positioned above a horizontal blue line. A green line, which forms part of a mountain-like shape, crosses the horizontal line and extends upwards and to the right.

**Transportation Authority of Marin  
Central Marin Ferry Connection Multi-use Pathway  
Marin County, California**

**Notice of Determination  
California Department of Fish and Game Receipt**

**September 30, 2010**

TAM Project No.: C-FY05/06-007

Jacobs Carter Burgess Project No.: CB701729





State of California—The Resources Agency  
 DEPARTMENT OF FISH AND GAME  
**2010 ENVIRONMENTAL FILING FEE CASH RECEIPT**

RECEIPT#
STATE CLEARING HOUSE # (If applicable) 2010062009

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY TRANSPORTATION AUTHORITY OF MARIN (TAM)		DATE
COUNTY/STATE AGENCY OF FILING MARIN COUNTY		DOCUMENT NUMBER
PROJECT TITLE CENTRAL MARIN FERRY CONNECTION MULTI-USE PATHWAY		
PROJECT APPLICANT NAME TAM		PHONE NUMBER 415 226 0823
PROJECT APPLICANT ADDRESS 750 LINDARO STREET SUITE 200	CITY SAN RAFAEL	STATE CA
		ZIP CODE 94901

PROJECT APPLICANT (Check appropriate box):

Local Public Agency     School District     Other Special District     State Agency     Private Entity

CHECK APPLICABLE FEES:

<input type="checkbox"/> Environmental Impact Report (EIR)	\$2,792.25	\$	\$0.00
<input checked="" type="checkbox"/> Negative Declaration (ND)(MND)	\$2,010.25	\$	2010 <sup>25</sup> \$0.00
<input type="checkbox"/> Application Fee Water Diversion (State Water Resources Control Board Only)	\$850.00	\$	\$0.00
<input type="checkbox"/> Projects Subject to Certified Regulatory Programs (CRP)	\$949.50	\$	\$0.00
<input type="checkbox"/> County Administrative Fee	\$50.00	\$	\$0.00
<input type="checkbox"/> Project that is exempt from fees			
<input type="checkbox"/> Notice of Exemption			
<input type="checkbox"/> DFG No Effect Determination (Form Attached)			
<input type="checkbox"/> Other _____		\$	_____

PAYMENT METHOD:

Cash     Credit     Check     Other \_\_\_\_\_

TOTAL RECEIVED \$ 2010<sup>25</sup> \$0.00

SIGNATURE 	TITLE PROJECT MANAGER
---------------	--------------------------

Notice of Determination

Appendix D

To:

Office of Planning and Research
For U.S. Mail: P.O. Box 3044 Sacramento, CA 95812-3044
Street Address: 1400 Tenth St. Sacramento, CA 95814

County Clerk
County of: Marin
Address: P.O. Box E, San Rafael, CA 94913

From:

Public Agency:
Address:
Contact:
Phone:

Lead Agency (if different from above):
Transportation Authority of Marin
Address: 750 Lindero Street, Suite 200 San Rafael CA 94901
Contact: Bill Whitney
Phone: (415) 226-0823

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

State Clearinghouse Number (if submitted to State Clearinghouse): 2010062009

Project Title: Central Marin Ferry Connection Multi-use Pathway Phase I

Project Location (include county): West of the U.S. Highway 101 at the East Sir Francis Drake Blvd. in Marin County

Project Description:

The Transportation Authority of Marin (TAM) is proposing to construct a new multi-use pathway intended to further promote non-motorized commute alternatives and enhance recreational travel within the City of Larkspur in Marin County, CA. The proposed pathway would be located within the Sonoma Marin Area Rail Transit (SMART), City of Larkspur, and California Department of Transportation (Caltrans) rights-of-way east of US Highway 101 (postmile (PM) 14.3 to PM 14.7).

This is to advise that the Transportation Authority of Marin has approved the above described project on September 23, 2010 and has made the following determinations regarding the above described project:
(Lead Agency or Responsible Agency)
(Date)

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

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at: 750 Lindero Street, Suite 200, San Rafael CA 94901

Signature (Public Agency) [Signature] Title PROJECT MANAGER

Date 9-30-2010 Date Received for filing at OPR

1000271853

TREASURER, COUNTY OF MARIN

GENERAL REVOLVING

INVOICE NUMBER	INVOICE DATE	Gross (+/-)Discount - Amount	DESCRIPTION
47 TAM FILING FEE	09/22/2010	2,010.25 Inv Tot: 2,010.25	

ISSUED BY  
Mark J. Walsh, CPA  
DIRECTOR OF FINANCE

Total \*\*\*\*\*2,010.25\*

NOT NEGOTIABLE

Mark J. Walsh, CPA  
Director of Finance  
County of Marin  
CIVIC CENTER - ROOM 225  
(415) 499-6154

THE BACK OF THIS CHECK HAS AN ARTIFICIAL WATERMARK - HOLD AT AN ANGLE TO VIEW

CHECK NO. 1000271853

Treasurer - County of Marin

Michael J. Smith  
San Rafael, California  
General Revolving Account

11-35/1210  
BANK OF AMERICA  
San Rafael Main Office  
San Rafael, California

Issue Date  
09/29/2010

VOID AFTER TWELVE MONTHS FROM THIS DATE OF ISSUE

PAY\*\*\*TWO THOUSAND TEN and 25/100 DOLLARS\*\*\*

CHECK AMOUNT  
\*\*\*\*\*2,010.25\*

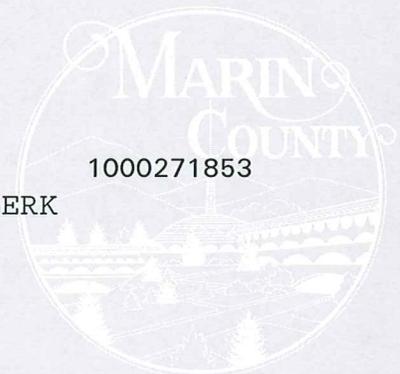
TO COUNTY OF MARIN-COUNTY CLERK  
THE 3501 CIVIC CENTER DR  
ORDER SAN RAFAEL CA 94903  
OF

*Mark J. Walsh*

Mark J. Walsh, CPA  
Marin County Director of Finance

⑈ 1000 2718 53⑈ ⑆ 1 210003 58⑆ 01825⑈80050⑈

Mark J. Walsh, CPA  
Director of Finance  
3501 Civic Center Dr. #225  
San Rafael, CA 94903



COUNTY OF MARIN-COUNTY CLERK  
3501 CIVIC CENTER DR  
SAN RAFAEL CA 94903

8810055018 PressureSeal Patent 4,918,128 - 0221

SEE REVERSE SIDE FOR  
OPENING INSTRUCTIONS

SEE REVERSE SIDE FOR  
OPENING INSTRUCTIONS



**Transportation Authority of Marin**  
**Central Marin Ferry Connection Multi-use Pathway**  
**Phase I Project**  
**Marin County, California**

**INITIAL STUDY/MITIGATED NEGATIVE DECLARATION**

Final, September 2010

TAM Project No.: C-FY05/06-007  
Jacobs Carter Burgess Project No: CB701729

SUBMITTED BY:  \_\_\_\_\_ 9/23/2010  
Phill Peters  
Environmental Planner/Biologist Date

REVIEWED BY:  \_\_\_\_\_ 9/23/2010  
Lauren Abom  
Senior Environmental Planner Date

APPROVED BY:  \_\_\_\_\_ 9/23/2010  
Kai Chan, PE  
Transportation Program Manager Date



**MARIN COUNTY COMMUNITY DEVELOPMENT AGENCY PLANNING DIVISION**

**INITIAL STUDY/MITIGATED NEGATIVE DECLARATION  
CENTRAL MARIN FERRY CONNECTION MULTI-USE PATHWAY PHASE I PROJECT**

**I. BACKGROUND**

- A. PROJECT SPONSOR'S NAME AND ADDRESS                      Transportation Authority of Marin  
750 Lindaro Street, Suite 200  
San Rafael, California 94901
- B. LEAD AGENCY NAME AND ADDRESS                      Transportation Authority of Marin  
750 Lindaro Street, Suite 200  
San Rafael, California 94901
- C. CONTACT PERSON                      Bill Whitney  
TELEPHONE NUMBER                      (415) 226-0823  
E-MAIL ADDRESS                      [BWhitney@tam.ca.gov](mailto:BWhitney@tam.ca.gov)

**II. PROJECT DESCRIPTION**

- A. PROJECT TITLE                      Central Marin Ferry Connection Multi-use  
Pathway Phase I Project
- B. TYPE OF APPLICATION(S)                      San Francisco Bay Conservation and  
Development Commission – Administrative  
Permit
- Regional Water Quality Control Board –  
Section 401 Water Quality Certification
- California Department of Fish and Game –  
Section 1602 Lake and Streambed  
Alteration Agreement
- U.S Army Corps of Engineers – Section 404  
Nationwide Permit
- Endangered Species Act – Section 7  
Consultation with U.S. Fish and Wildlife  
Service/National Marine Fisheries Service
- County of Marin Department of Public  
Works – Creek Permit
- Sonoma Marin Area Rail Transit –  
Encroachment Permit

City of Larkspur – Heritage Tree Ordinance Permit

City of Larkspur – Encroachment Permit

California Department of Transportation – Encroachment Permit

C. PROJECT LOCATION

City of Larkspur within the Sonoma Marin Area Rail Transit, Caltrans, and city of Larkspur rights-of-way. Adjacent to the east side of U.S. Highway 101 (PM 14.3 to PM 14.7) and includes a portion of East Sir Francis Drake Boulevard.

Refer to:

Figure 1. Project Vicinity Map

Figure 2. Study Area Map

Assessor's Parcel Numbers: 018-171-16, 018-171-17, 018-171-18, 018-171-19, 018-171-35, 018-172-01, 018-172-02, 018-172-16, 018-191-07, 018-191-08

D. MARIN COUNTYWIDE PLAN LAND USE DESIGNATION

Publicly owned, non-taxable; Retail; Office

E. ZONING

First Residential District (R1)

## F. DESCRIPTION OF PROJECT

The Transportation Authority of Marin (TAM) is proposing to construct a new multi-use pathway intended to further promote non-motorized commute alternatives and enhance recreational travel within the City of Larkspur in Marin County, California (Figure 1). The Central Marin Ferry Connection Multi-use Pathway project contains two phases (Phase I and II). Phase I would include a multi-use pathway from the future Cal Park Hill Tunnel Pathway and Sonoma Marin Area Rail Transit (SMART) Larkspur Station located east of U.S. Highway 101 and north of East Sir Francis Drake Boulevard to the existing multi-use pathway located south of East Sir Francis Drake Boulevard along the north bank of the Corte Madera Creek (postmile [PM] 14.3 to PM 14.7) (Figure 2). The proposed pathway would be located within the SMART, California Department of Transportation (Caltrans), and city of Larkspur rights-of-way. Phase II would include an extension of the Phase I multi-use pathway south over Corte Madera Creek to Wornum Drive. This Initial Study has been prepared as part of the environmental clearance process pursuant to the California Environmental Quality Act (CEQA) for the Central Marin Ferry Connection Multi-use Pathway Phase I project (proposed project). Phase II has not yet been planned or programmed and is not part this project's scope.

If future funding is identified, Phase II of the Central Marin Ferry Connection project would connect to the Phase I multi-use pathway at its southern limit along the east side of U.S. Highway 101 to Wornum Drive. This would include an overcrossing above Corte Madera Creek and provide access to the Greenbrae Boardwalk. Once completed, the entire Central Marin Ferry Connection project (i.e., Phases I and II) would provide a continuous multi-use pathway from the Cal Park Hill Tunnel Pathway and the future SMART Larkspur Station in the north to Wornum Drive in the south.

Phases I and II of the proposed project have independent utility with respect to each other, because each would serve their own purpose of providing non-motorized travel in the area and would occur regardless of whether the other phase was to occur. The independent utility analysis does not include the Cal Park Hill Tunnel Pathway since this is under construction and constitutes a baseline condition. If funding is secured for the Central Marin Ferry Connection Phase II project, a separate environmental review would be conducted in compliance with CEQA to assess this project's potential environmental impacts.

### **Project Background**

The County of Marin identified the need to improve the U.S. Highway 101 corridor from the Tamalpais Drive interchange in the Town of Corte Madera to the East Sir Francis Drake Boulevard interchange in the City of Larkspur (i.e., Greenbrae Corridor) in 1999. The need for improving the corridor was recognized as a high priority at the regional planning level. With the 2004 passage of Regional Measure 2, funds were identified to further develop improvements within the Greenbrae Corridor. In coordination with the Caltrans, TAM engaged the public in a series of public workshops (October 20, 2006; March 27, 2007; March 3, 2008; and September 27, 2008) designed to identify public concerns and develop several pathway alternatives using context sensitive design principles to integrate

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Central Marin Ferry Connection Study Area Multi-use Pathway



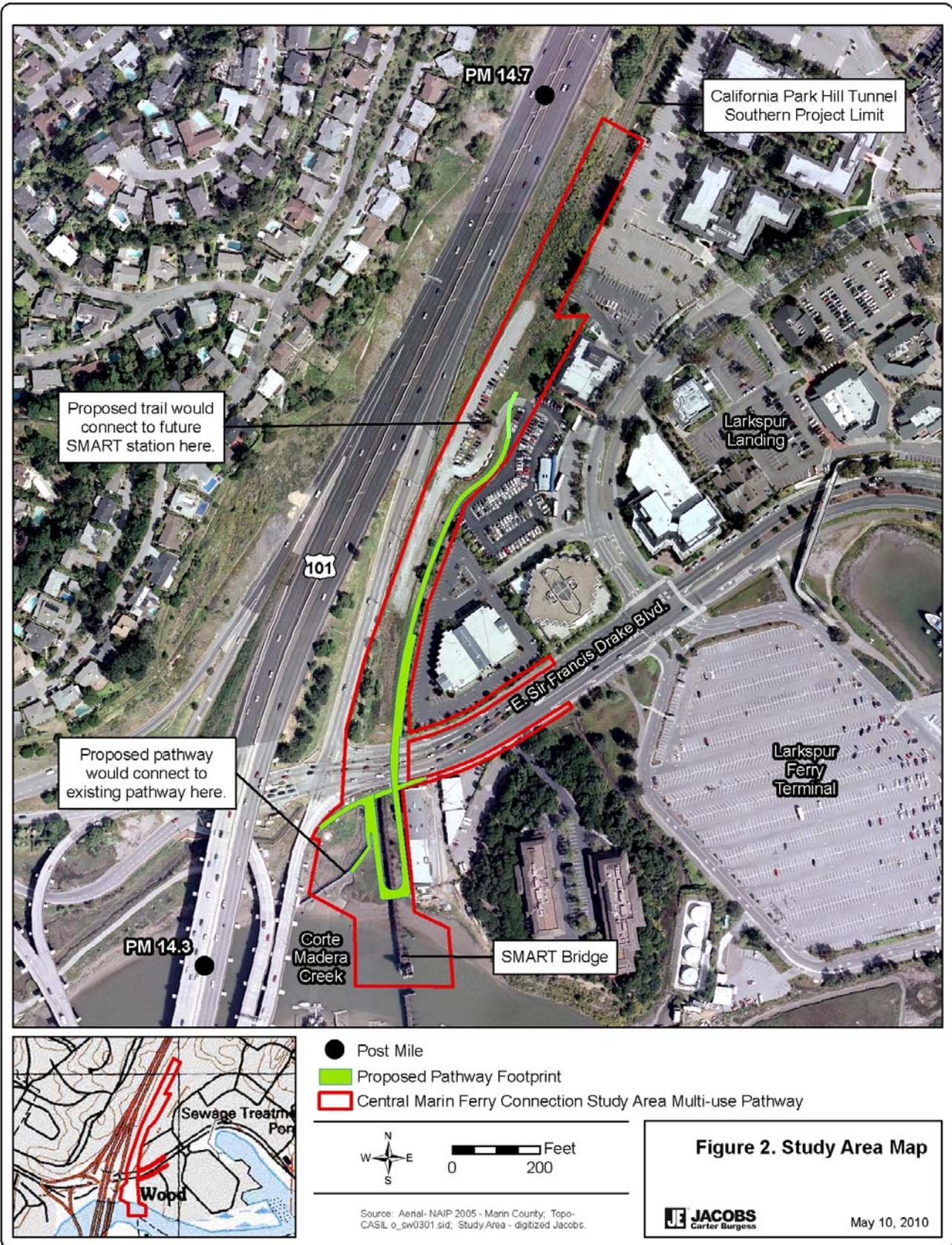
0 1,000 Feet

**Figure 1. Project Vicinity Map**



February 27, 2010

Source: Aerial-NAIP 2005 - Marin County, Topo-CASIL\_0\_sw0301.sid; Study Area - digitized Jacobs.



stakeholder input into the project development process. This included considering the physical setting and addressing community values as part of the public outreach process. In addition to identifying motorized transportation alternatives throughout the Greenbrae Corridor, non-motorized commute alternatives for the U.S. Highway 101/East Sir Francis Drake Boulevard interchange were developed. These non-motorized alternatives included the improvements described in this proposed project. As a result, this proposed project stems from the larger planning effort of the Greenbrae Corridor improvements to provide non-motorized commute alternatives.

## **Project Need**

Currently, north/south non-motorized travel is difficult at the U.S. Highway 101/East Sir Francis Drake Boulevard interchange. This is due to East Sir Francis Drake Boulevard serving as a physical barrier to non-motorized travel between the Cal Park Hill Tunnel Pathway (located north of the roadway) and the existing multi-use pathway (located south of the roadway). Access to the existing multi-use pathway from the north side of East Sir Francis Drake Boulevard requires travelers to cross the roadway at Larkspur Landing Circle, which is located approximately 800 feet east of the pathway. Also, Corte Madera Creek and the adjacent salt marsh provide a unique habitat viewing area with views of the San Francisco Bay. Currently, access to view points is limited.

## **Project Purpose**

The proposed project's purpose is to improve public access and connectivity for non-motorized travel by constructing a new East Sir Francis Drake Boulevard multi-use pathway overcrossing east of the U.S. Highway 101/East Sir Francis Drake Boulevard interchange. This proposed project would also improve access to the viewpoints for the public to view the Corte Madera Creek salt marsh area and San Francisco Bay by constructing an elevated path along the north bank of Corte Madera Creek. This proposed project is important to central Marin County, as it would provide safe and convenient non-motorized access between local transit facilities (i.e., future SMART Larkspur Station) and the existing Larkspur Ferry Terminal. The proposed project would also improve access to schools, business centers, and residential communities.

## **Project Description**

The proposed project would include the following construction activities:

### **Non-motorized Access Improvements**

- Construct a new multi-use pathway that extends from the existing Cal Park Hill Tunnel Pathway to East Sir Francis Drake Boulevard.
- Construct a new multi-use pathway overcrossing structure and approach ramps at East Sir Francis Drake Boulevard.

- Construct a new access ramp from the sidewalk on the north side of East Sir Francis Drake Boulevard to the new overcrossing.
- Construct an approach ramp for the multi-use pathway south of East Sir Francis Drake Boulevard with viewing areas above the salt marsh area and Corte Madera Creek.
- Construct a new access ramp that conforms to the existing multi-use paths and repave the existing multi-use pathway south of East Sir Francis Drake Boulevard from the U.S. Highway 101 northbound off-ramp structure to the Larkspur Ferry Terminal entrance.

#### Other Construction Elements

- Conduct a geotechnical survey.
- Construct retaining walls at various locations along the multi-use pathway.
- Construct new sidewalks, curbs, and gutters along East Sir Francis Drake Boulevard.
- Install signage, striping, lighting, screening, handrails, fencing, landscaping, truncated domes, and/or bollards.
- Construct stormwater swales and detention basins.
- Remove or retrofit a portion of the existing railroad trestle.
- Relocate and protect existing utilities.
- Construct temporary construction access areas within the salt marsh and Corte Madera Creek.

As it relates to the other construction elements, a portion of the existing railroad trestle would be removed as a part of this project to accommodate the multi-use pathway. The remaining portions around the pathway will need to be structurally evaluated to determine if retrofitting will be required.

Additionally, constructing the new multi-use pathway, conducting preconstruction activities (e.g., geotechnical survey), and removing or retrofitting the existing railroad trestle would require the construction of temporary access area within the sensitive areas of the tidal salt marsh. No construction would occur within the open waters of Corte Madera Creek. However, a barge may be used during construction, which would be located within the creek.

Refer to Figures 3 and 4 for photo simulations of the proposed multi-use pathway at the East Sir Francis Drake Boulevard (Appendix A: 13). Figure 5 shows a cross sectional view of the proposed pathway.

#### **Environmental Setting**

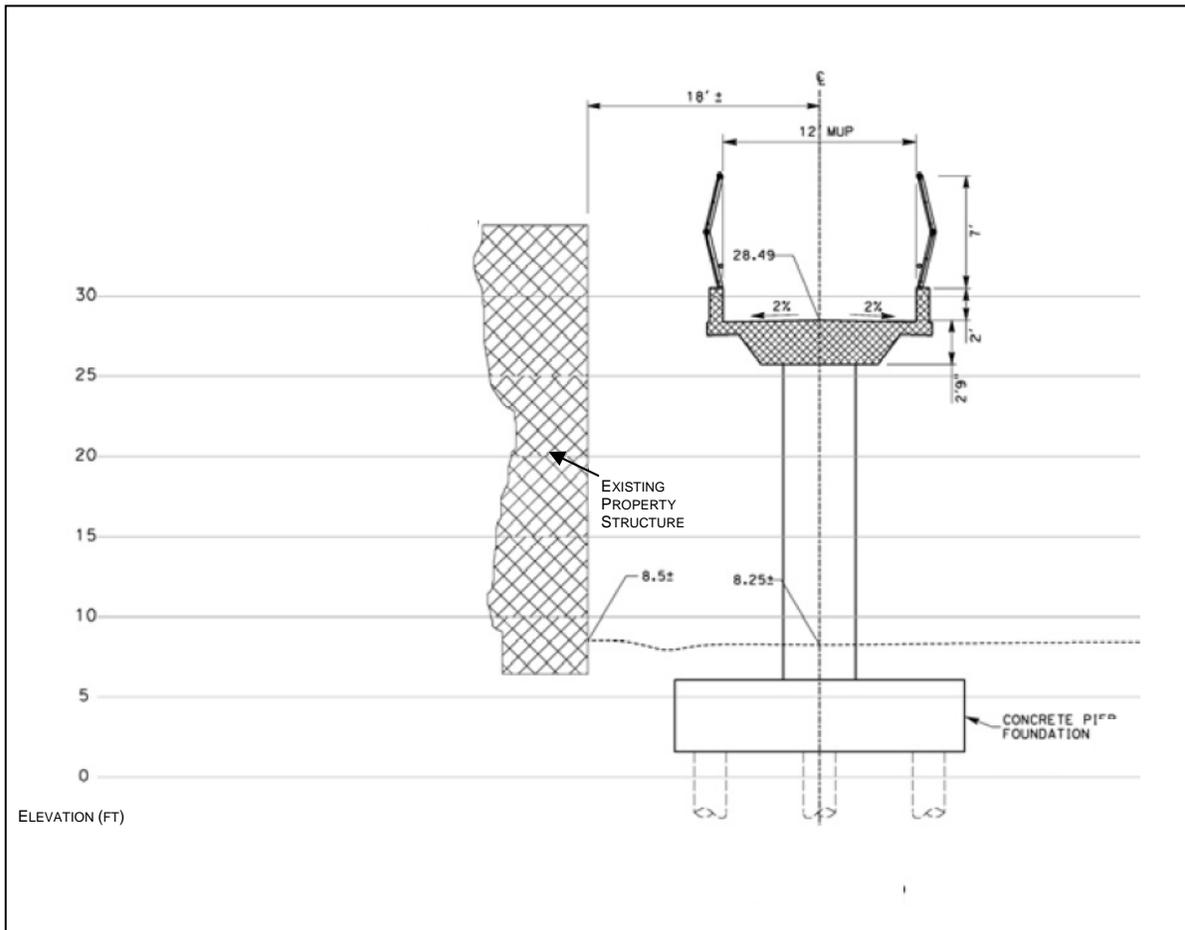
The proposed project is located within the San Francisco Bay region, specifically on the Marin Peninsula of the North Bay. The Study Area, which includes the project footprint 6.89 acres (2.79 hectares) and the immediately adjacent areas, is located in an urbanized setting with natural areas surrounded by transportation infrastructure as well as commercial and residential development.



**Figure 3.** Photo simulation showing the proposed multi-use pathway overcrossing at East Sir Francis Drake Boulevard. View is facing west from westbound East Sir Francis Drake Boulevard. The design of the overcrossing has not yet been completed, and, as such, this photo simulation may not accurately reflect the final design.



**Figure 4.** Photo simulation showing the proposed multi-use pathway from the U.S. Highway 101 roadway. View is facing east from northbound U.S. Highway 101 roadway. The design of the overcrossing has not yet been completed, and, as such, this photo simulation may not accurately reflect the final design.



**Figure 5.** Proposed multi-use pathway cross section view of pathway and pier. This pier would be located south of East Sir Francis Drake Boulevard.

A portion of the Sonoma Marin Area Rail Transit's (SMART) right-of-way (previously operated by the Northwestern Pacific Railroad), which includes railroad tracks and an unused trestle over Corte Madera Creek, runs north and south throughout the Study Area. The proposed project has been identified in the Marin Countywide Plan (CWP) as a proposed trail (Appendix A: 1).

The proposed project can generally be divided into two sections (north and south) that are separated by East Sir Francis Drake Boulevard. The northern section is bound by East Sir Francis Drake Boulevard to the south, U.S. Highway 101 to the west, the Cal Park Hill Tunnel Pathway to the north, and privately-owned land to the east. This section contains upland natural areas with surrounding adjacent transportation infrastructure, as well as residential and commercial developments. The southern section is bound by Corte Madera Creek to the south, U.S. Highway 101 to the west, East Sir Francis Drake Boulevard to the north, and privately-owned land to the east. This section contains wetland and upland habitat and Corte Madera Creek with surrounding adjacent transportation infrastructure, as well as residential and commercial developments.

### Geology

The proposed project is located within nine miles of the San Andreas Fault Zone. Review of the resource maps maintained by the Marin County Community Development Agency determined that that proposed project is not located within an Alquist Priolo Zone or other seismic hazard area. According to the "Liquefaction Susceptibility Hazard" Map (2-11) in the Marin CWP (Appendix A: 1), the Study Area is located within areas considered to be of very high and high potential for liquefaction. The subsurface condition was evaluated as part of an initial geotechnical investigation, and it was determined that overall liquefaction potential is relatively low. The area has also not been identified by the California Geologic Survey as a hazard zone for liquefaction of landslides. However, the San Francisco Bay Area is considered a seismically active region (Appendix A: 4).

### Hydrology

The proposed project is located within the San Francisco Bay Regional Water Quality Control Board (RWQCB) jurisdiction in the Bay Bridges Hydrologic Unit within the San Rafael Hydrologic Area. There is one direct receiving water body: Corte Madera Creek, which is located at the southern portion of the Study Area. The Corte Madera Marsh State Ecological Reserve is located south of the creek and is an indirect receiving water body, which drains to Central San Francisco Bay approximately 0.4 mile downstream of the proposed pathway. Corte Madera Creek is tidally influenced and considered a navigable water of the United States. The proposed pathway would not be constructed within Corte Madera Creek. However, it would be constructed within the tidal salt marsh. Corte Madera Creek and San Francisco Bay are included on the California Water Act (CWA) 303(d) List of Water Quality Limited Segments and therefore do not meet water quality standards (Appendix A: 8, 9).

## Greenhouse Gas Emissions

The natural process through which heat is retained in the earth's atmosphere is called the "greenhouse effect." Greenhouse Gases (GHGs) absorb long-wave (thermal) radiation and trap it in the bottom layer of the atmosphere. Without this natural "greenhouse effect," temperatures would be about 60°F lower than they are now, and life as we know it today would not be possible. However during the past century, humans have substantially added to the amount of greenhouse gases in the atmosphere by burning fossil fuels such as coal, natural gas, oil, and gasoline to power cars, factories, utilities, and appliances. The added gases, primarily that of carbon dioxide and methane, are enhancing the natural greenhouse effect and contributing to an increase in global average temperature and related climate changes. To gauge the potency of individual GHGs, scientists have established a Global Warming Potential (GWP) for each GHG based on its ability to absorb and re-radiate long-wave radiation. The GWP of a gas is determined using carbon dioxide as the reference gas with a GWP of 1.

Greenhouse gases include, but are not limited to, the following:

- Carbon dioxide (CO<sub>2</sub>). Carbon dioxide is the most widely emitted GHG and is the reference gas (GWP of 1) for determining the GWP for other GHGs.
- Methane (CH<sub>4</sub>). Methane is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. Methane is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The GWP of methane is 21.
- Nitrous oxide (N<sub>2</sub>O). Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The GWP of nitrous oxide is 310.
- Hydrofluorocarbons (HFCs). HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The GWP of HFCs range from 140 for HFC-152a to 6,300 for HFC-236fa.
- Perfluorocarbons (PFCs). PFCs are compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semiconductor manufacturing. The GWPs of PFCs range from 5,700 to 11,900.
- Sulfur hexafluoride. Sulfur hexafluoride is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high-voltage equipment that transmits and distributes electricity. Sulfur hexafluoride is the most potent GHG that has been evaluated by the Intergovernmental Panel on Climate Change (IPCC) with a GWP of 23,900.

- Water vapor (H<sub>2</sub>O). Although water vapor has not received the scrutiny of other GHGs, it is the primary contributor to the greenhouse effect. Water vapor and clouds contribute 66 to 85 percent of the greenhouse effect (water vapor alone contributes 36 to 66 percent) (Schmidt 2005<sup>1</sup>). The IPCC has not determined a GWP for water vapor.

Human activities (such as motor vehicle use, energy production, and land development) also result in both direct and indirect emissions that have contributed to highly elevated concentrations of GHGs in the atmosphere. According to the California Air Resources Board, transportation alone accounts for nearly 40 percent (estimated) of California's GHG emissions. Emissions attributable to transportation are largely a result of the majority of California's urban growth that is characterized by travel-inducing features such as: low density, unbalanced land uses separating jobs and housing, and a focus on single-occupancy vehicle travel. With a growing population and economy, California's total GHG emissions continue to increase. This rapid rate of increase in GHG emissions causes a change in the composition of atmospheric gases that may cause life threatening and adverse environmental consequences. Some of the potential impacts of global warming may include loss in snow pack, rise of sea levels, changes in weather (including heat waves), an increase in the number of ozone days, erosion of California's Coastline, increased number and size of large forest fires, and increased number of drought years.

### Marin County Greenhouse Gas Reduction Plan

In October of 2006, the Marin County Board of Supervisors adopted the Marin County Greenhouse Gas Reduction Plan (Plan). The Plan sets a target to reduce GHG emissions 15-20 percent below year 1990 levels by the year 2020 for internal government emissions, as well as a reduction target of 15 percent below 1990 Countywide levels for the entire County. Currently, the Plan identifies resources and programs to reduce GHG emissions in concert with internal measures in place through the Department of Public Works adopted Countywide Plan Update (adopted November 2007). The emissions reduction measures identified in the Plan include building energy use, transportation, waste management, and land use planning.

### Biological Resources

#### Vegetation and Wildlife Habitat

Historically, the Study Area was dominated by tidal salt marshes and upland habitats. Currently, the natural areas generally consist of disturbed terrestrial and aquatic areas. The terrestrial areas, which are located in the upland portion of the Study Area, include the following land cover types: ruderal vegetation, non-native grassland, northern coastal salt marsh wetlands (tidal salt marsh), native trees, and landscaped areas. The aquatic areas include Corte Madera Creek and tidal channels.

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<sup>1</sup> Real Climate. "Water Vapour: Feedback or Forcing?" <http://www.realclimate.org/index.php/archives/2005/04/water-vapour-feedback-or-forcing/#more-142>. April 6, 2005.

## Terrestrial areas

Ruderal vegetation is the term used to describe roadside vegetation composed of primarily upland weedy, non-native grasses and forbs. It is the predominant vegetation type in the Study Area. Exotic and highly invasive species are common and include the following species: French broom (*Genista monspessulana*), sweet fennel (*Foeniculum vulgare*), Himalayan blackberry (*Rubus discolor*), and pampas grass (*Cortaderia selloana*). Vegetation within the wetland consists mainly of pickleweed (*Sarcocornia pacifica*) and saltgrass (*Distichilis spicata*). The Study Area contains two native species of trees, redwood (*Sequoia sempervirens*) and coast live oak (*Quercus agrifolia*), as well as additional non-native trees (e.g. *Eucalyptus* sp. and *Acacia* sp.).

## Aquatic Areas

Corte Madera Creek is the main perennial watercourse within the Study Area, which originates in the foothills of Mount Tamalpais and joins the San Francisco Bay in the Town of Larkspur (east of the Study Area). Tidal channels are also located within the Study Area along the northern bank of the Corte Madera Creek. Annual precipitation for the area is 31 inches, and the mean high water elevation is 2.5 feet above mean sea level.

## Special-status Species

The Study Area is located in the San Rafael U.S. Geological Survey (USGS) 7.5-minute quadrangle. A list of federally endangered and threatened species that may occur within the San Rafael and seven surrounding USGS 7.5-minute quadrangles was obtained online from the U.S. Fish and Wildlife Service (USFWS) website on May 6, 2008, and updated on February 4, 2010. The USFWS, California Department of Fish and Game (CDFG), and California Native Plant Society (CNPS) electronic inventories were queried for the quadrangle in which the Study Area occurs as well as for the seven adjacent quadrangles. The following federally listed threatened or endangered species were identified as having the potential to occur in the Study Area: California clapper rail (*Rallus longirostris obsoletus*), salt marsh harvest mouse (*Reithrodontomys raviventris*), tidewater goby, Central California Coast steelhead (*Oncorhynchus mykiss*), and Central California Coast coho salmon (*Oncorhynchus kisutch*). Additionally, Corte Madera Creek has been designated as critical habitat for Central California Coast steelhead and Central California Coast coho salmon, as well as designated as essential fish habitat for Central California Coast coho salmon. One state listed-only threatened or endangered species was identified as having potential to occur: the California black rail (*Laterallus jamaicensis coturniculus*). Although it was determined that special-status plant species have the potential to occur within the Study Area, botanical surveys conducted during the spring and summer of 2008 determined that none were present.

The tidal salt marsh wetland, open waters of Corte Madera Creek, and the tidal channels are the habitat types that may provide potentially suitable habitat for sensitive species. The wetland habitat provides suitable habitat for the California clapper rail, California black rail, and the salt marsh harvest mouse.

Corte Madera Creek and tidal channels provide suitable habitat for tidewater goby, Central California Coast steelhead, and Central California Coast coho salmon.

The remaining portion of the project area north of East Sir Francis Drake Boulevard is upland habitat composed mainly of ruderal, native trees, and landscaped areas. The native trees may be potentially suitable habitat for sensitive species, specifically birds protected by the Migratory Bird Treaty Act. These trees may be used by birds for nesting and foraging (Appendix A: 10).

## **Hazardous Materials**

A Phase I Environmental Site Assessment (Phase I ESA) was conducted to determine whether recognized environmental conditions are present at the proposed project site. A Federal, State, and Local agency database search indicated that two hazardous materials release sites were identified within one-quarter mile of the project site. The two hazardous materials release sites have been closed, indicating that regulatory agency oversight of remedial and/or monitoring activities have been completed. A geological map of the project area does not indicate any naturally-occurring asbestos rock (ultramafic) at the project site. The proposed project site was developed for railroad services, parking, and roads. The Phase I ESA identified the following contaminants of potential concern:

- Pesticides, herbicides, creosote, and metals in shallow soils adjacent to railroad tracks.
- Petroleum hydrocarbons and associated compounds in shallow soils associated with the use of an unpaved parking lot.
- Creosote and metals in abandoned railroad ties and existing boardwalk beams and planks.
- Aerially-deposited lead in shallow soils within approximately 30 feet of East Sir Francis Drake Boulevard and the northbound on- and off- ramps for U.S. Highway 101.

It was determined that aerially-deposited lead in undisturbed soils near the intersection of East Sir Francis Drake Boulevard and U.S. Highway 101 was the only contaminant of potential concern that may affect the proposed project. The Phase II Soil Investigation determined that the soil did not contain total lead above residential environmental screening levels (Appendix A: 11, 12).

## **Aesthetic/Visual Resources**

Generally, the proposed project setting focuses on the crossroads of two regional travel ways (U.S. Highway 101 and East Sir Francis Drake Boulevard) and a navigable stream (Corte Madera Creek). The majority of the Study Area is made-up of roadway, landscaped highway vegetation, railroad, and natural creek shoreline. U.S. Highway 101 and the railroad embankment within a wooden trestle run south and north in this highly urbanized area of Larkspur. East Sir Francis Drake Boulevard and Corte Madera Creek bisect the Study Area in an east–west direction. Corte Madera Creek is a large perennial creek,

which is open to boating, that flows into the San Francisco Bay just east of the Study Area. The banks of Corte Madera Creek provide the only salt marsh habitat in the Study Area, and the creek is open to the public. The Corte Madera Creek path and East Sir Francis Drake Boulevard multi-use path link the east and west sides of U.S. Highway 101 for pedestrians and cyclists.

U.S. Highway 101 provides a north–south connection to the cities of San Francisco and Santa Rosa. Within the Study Area, U.S. Highway 101 is not designated as a state scenic highway. East Sir Francis Drake Boulevard provides an eastward route to Interstate 580 and the San Rafael–Richmond Bay Bridge. To the west, East Sir Francis Drake Boulevard serves as gateway to the Greenbrae community, the town of San Anselmo, and State Highway 1, all leading to the Point Reyes National Seashore.

There are three landscape units within the Study Area that are defined by natural topographic features and the two transportation corridors. The landscape units include: 1) the natural resources and highway bridge undersides along the Corte Madera Creek corridor, 2) the highway corridor of U.S. Highway 101, and 3) the urban street corridor of East Sir Francis Drake Boulevard with its mixed-use commercial land uses facing the street.

The viewing audience includes two groups that are categorized by what they can see as they move through the project Study Area. The first group includes motorists that could view the proposed project from U.S. Highway 101 or East Sir Francis Drake Boulevard. The second group includes commuters, residents, employees, or owners of commercial business and recreational viewers who pass through the area on foot, by bicycle or boat, or as visitors to viewpoints such as Mt. Tamalpais or Corte Madera Creek (Appendix A: 13).

## **Cultural Resources**

The project area of potential effect (APE) consists almost entirely of a narrow north–south trending corridor in an urbanized setting and runs along the abandoned Northwestern Pacific Railroad line. A record search around the proposed project corridor identified two pre-historic and one historic cultural resource. The two pre-historic resources lie north of Corte Madera Creek. However, neither falls within the project APE. The historic resource is the 0.5-mile segment of the Northwestern Pacific railroad’s main line, which includes a trestle over Corte Madera Creek. This section of railroad extends from approximately PM 14.7 at Corte Madera Creek northward to approximately PM 15.3. It follows a southeasterly path that generally parallels U.S. Highway 101 on the east side until East Sir Francis Drake Boulevard, where it then takes to a more southern course to Corte Madera Creek. The segment includes a portion of a wood trestle constructed 1924, which connects to the bascule bridge over the creek. The railroad segment north of East Sir Francis Drake Boulevard is no longer in service, and vegetation and earth cover the tracks and ballast (Appendix A: 14, 15, 16).

## **Regulatory Setting and Permit Requirements**

The proposed project would require permits and/or approvals from Federal, State, and local agencies, which would be secured during final design and prior to construction. These permits include:

- U.S. Army Corps of Engineers (USACOE) (CWA Section 404 Permit)
- USFWS, National Marine Fisheries Service (Biological Opinion/Incidental Take Permit)
- CDFG (Section 1602 Lake and Streambed Alteration Agreement)
- San Francisco Bay RWQCB (CWA Section 401 Permit)
- San Francisco Bay Conservation and Development Commission (BCDC) (Administrative Permit)
- County of Marin Department of Public Works (Creek Permit)
- Sonoma Marin Area Rail Transit (Encroachment Permit)
- City of Larkspur (Heritage Tree Ordinance Permit)
- City of Larkspur (Encroachment Permit)
- Caltrans (Encroachment Permit)

### **III. CIRCULATION AND REVIEW**

This Initial Study is being circulated to all agencies that have jurisdiction over the subject property or natural resources affected by the project to attest to the completeness and adequacy of the information contained in the Initial Study as it relates to the concerns, which are germane to the agency's jurisdictional authority. In addition, the document was made available for public review for a period of 30 days (June 3, 2010 to July 2, 2010).

### **IV. EVALUATION OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

Pursuant to Section 15063 of the State CEQA Guidelines and the County Environmental Impact Report (EIR) Guidelines, Marin County would prepare an Initial Study for all projects not categorically exempt from the requirements of CEQA. The Initial Study evaluation is a preliminary analysis of a project that provides the County with information to use as the basis for deciding whether to prepare an EIR or Negative Declaration. The points enumerated below describe the primary procedural steps undertaken by the County in completing an Initial Study checklist evaluation, and, in particular, the manner in which significant environmental effects of the project are made and recorded.

- A. The determination of significant environmental effect is to be based on substantial evidence contained in the administrative record and the County's environmental database consisting of factual information regarding environmental resources and environmental goals and policies relevant to Marin County. As a procedural device for reducing the size of the Initial Study document, relevant information sources cited and discussed in topical sections of the checklist evaluation are incorporated by reference into the checklist (e.g., general plans, zoning ordinances). Each of these information sources has been assigned a number which is shown in parenthesis following each topical question and which corresponds to a number on the database source list provided herein as Appendix A. Other sources used or individuals contacted may also be cited in the discussion of topical issues where appropriate.
- B. In general, a Negative Declaration shall be prepared for a project subject to CEQA when either the Initial Study demonstrates that there is no substantial evidence that the project may have one or more significant effects on the environment. A Negative Declaration shall also be prepared if the Initial Study identifies potentially significant effects, but revisions to the project made by or agreed to by the applicant prior to release of the Negative Declaration for public review would avoid or reduce such effects to a level of less than significant, and there is no substantial evidence that the project as revised would have a significant effect on the environment. A signature block is provided in Section VII of this Initial Study to verify that the project sponsor has agreed to incorporate mitigation measures into the project in conformance with this requirement.
- C. All answers to the topical questions must take into account the whole of the action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct,

and construction as well as operational impacts. Significant unavoidable cumulative impacts shall be identified in Section VI of this Initial Study (Mandatory Findings of Significance).

- D. A brief explanation shall be given for all answers except "Not Applicable." Answers are adequately supported by the information sources cited in the parenthesis following each question. A "Not Applicable" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "Not Applicable" answer shall be discussed where it is based on project-specific factors as well as general standards (e.g., the project would not expose sensitive receptors to pollutants based on a project-specific screening analysis).
- E. "Less Than Significant Impact" is appropriate if an effect is found to be less than significant based on the project as proposed and without the incorporation of mitigation measures recommended in the Initial Study.
- F. "Potentially Significant Unless Mitigated" applies where the incorporation of recommended mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact." The project sponsor must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section V, "Earlier Analyses", may be cross-referenced).
- G. "Significant Impact" is appropriate if an effect is significant or potentially significant, or if the project sponsor lacks information to make a finding that the effect is less than significant. If there are one or more effects that have been determined to be significant and unavoidable, an EIR shall be required for the project.
- H. The answers in this checklist have also considered the current CEQA Guidelines and the Initial Study Checklist contained in those Guidelines.

**V. ISSUES (and Supporting Information Sources):**

1. LAND USE AND PLANNING. *Would the proposal:*

a) <b>Conflict with applicable Countywide Plan designation or zoning standards? (source #(s): 1, 2, 3)</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[X]	[ ]	[ ]

The determination of policy consistency as discussed in this Initial Study section represents TAM’s interpretation of current local plans, policies, and regulations. However, this Initial Study does not determine policy consistency.

Policy inconsistencies may not necessarily indicate significant environmental effects. Section 15358(b) of the CEQA Guidelines states that “effects analyzed under CEQA must be related to a physical change in the environment.” Therefore, only those policy inconsistencies that would lead to a significant effect on the physical environment are considered significant impacts pursuant to CEQA. Where potentially significant environmental impacts are raised in the discussion below, they have been mitigated to a less-than-significant level. Therefore, project activities are determined to be consistent with the relevant policies cited. Mitigation measures are addressed further in the topical impact sections following plan policy analysis.

Land use designations, and consequently the development of the project site, are governed by the objectives of the Marin CWP, the City of Larkspur General Plan, and Title 22 of the Marin County Code. The proposed project is located within the City Centered Corridor as defined by the Marin CWP and is located in an undesignated area identified by *Map 5.2: Lucky Drive Area/Greenbrae Boardwalk Land Use Policy Map* in Planning Area 5 (Lower Ross Valley) (Appendix A: 1).

**Marin Countywide Plan**

Consistent: The proposed project would not require any land use designation amendments. Further, the proposed Land Division Precise Development Plan, Master Plan Waiver, and future use would be consistent with the Marin CWP Land Use Designation.

**City of Larkspur General Plan**

Consistent: As described in the Community Impact Assessment, the proposed project would comply with the land use, circulation, trails, and paths goals as stated in the city of Larkspur General Plan (Appendix A: 17).

**Marin County Code Title 22 (Development Code)**

Consistent: The proposed project would be consistent with the development in the First Residential District (R1) zoning district.

<p>b) <b>Conflict with applicable environmental plans or policies adopted by Marin County?</b> (source #(s): 1, 9, 10)</p>	<p>Significant Impact</p>	<p>Potentially Significant Unless Mitigated</p>	<p>Less than Significant Impact</p>	<p>Not Applicable</p>
	[ ]	[X]	[ ]	[ ]

**Marin Countywide Plan Environmental Goals and Policies**

Biological Resource Goals and Policies

Biological resources are discussed in Section V.7 of this Initial Study, which includes mitigation measures to reduce impacts below a significant level. Implementation of the mitigation measures will ensure compliance with the goals and policies described below.

Goal BIO 1: *Enhanced Native Habitat and Biodiversity.* Effectively manage and enhance native habitat, maintain viable native plant and animal populations, and provide for improved biodiversity throughout the County.

Policy BIO 1.1: *Protect Wetlands, Habitat for Special-Status Species, Sensitive Natural Communities, and Important Wildlife Nursery Areas and Movement Corridors.* Protect sensitive biological resources, wetlands, migratory species of the Pacific flyway, and wildlife movement corridors through careful environmental review of proposed development applications, including consideration of cumulative impacts, participation in comprehensive habitat management programs with other local and resource agencies, and continued acquisition and management of open space lands that provide for permanent protection of important natural habitats.

Consistent: The proposed project would have a potentially significant impact unless mitigated. The Study Area contains potentially suitable habitat for California clapper rail,

California black rail, salt marsh harvest mouse, tidewater goby, Central California Coast steelhead, and Central California Coast coho salmon. Additionally, the proposed project is located within the Pacific flyway and contains potential habitat for species protected under the MBTA. Impacts to Corte Madera Creek, which is potentially suitable habitat for tidewater goby, Central California Coast steelhead, and Central California Coast coho salmon, would be reduced to a less than significant level through the implementation of mitigation measures. Impacts to the tidal marsh, which is potentially suitable habitat for California clapper rail, California black rail, and salt marsh harvest mouse, would be mitigated through the implementation of mitigation measures and the creation or restoration of habitat in a ratio of 2:1 for on-site and 3:1 for off-site. Impacts to birds protected under the MBTA would be reduced to a less than significant level through the implementation of the mitigation measures described in Section V.7 (nos. 2–9, 11–27). Therefore, the project is mitigated to consistency with this policy.

Policy BIO 1.3: *Protect Woodlands, Forests, and Tree Resources.* Protect large native trees, trees with historical importance; oak woodlands; healthy and safe eucalyptus groves that support colonies of monarch butterflies, colonial nesting birds, or known raptor sites; and forest habitats. Prevent the untimely removal of trees through implementation of standards in the Development Code and the Native Tree Preservation and Protection Ordinance. Encourage other local agencies to adopt tree preservation ordinances to protect native trees and woodlands, regardless of whether they are located in urban or undeveloped areas. See also Policy SV-1.7.

Consistent: The proposed Study Area includes the following trees: redwood, coast live oak, and eucalyptus. The proposed project would have a potentially significant impact on tree resources, due to removal, unless mitigated. Impacts to trees from removal would be reduced to a less than significant level through the implementation of mitigation measures described in Section V.7 (no. 21) and the planting of trees in a ratio to be determined in coordination with Marin County and the city of Larkspur. Therefore, the project is mitigated to consistency with this policy.

Policy BIO 1.5: *Promote Use of Native Plant Species.* Encourage use of a variety of native or compatible nonnative, non-invasive plant species indigenous to the site vicinity as part of project landscaping to improve wildlife habitat values.

Consistent: The disturbed area within the study area will be seeded or replanted with native species within the upland and wetland areas. Use of native plant species is described in mitigation measures described in Section V.7 (nos. 5, 6). Therefore, the project is mitigated to consistency with this policy.

Policy BIO 1.6: *Control Spread of Invasive Exotic Plants.* Prohibit use of invasive species in required landscaping as part of the discretionary review of proposed development. Work with landowners, landscapers, the Marin County Open Space District, nurseries, and the multi-agency Weed Management Area to remove and prevent the spread of highly invasive and noxious weeds. Invasive plants are those plants listed in the State’s Noxious Weed List, the California Invasive Plant Council’s list of “Exotic Pest Plants of Greatest Ecological Concern in California,” and other priority species identified by the agricultural commissioner and California Department of Agriculture.

Consistent: Exotic and highly invasive species are common throughout wetland and ruderal areas in the Study Area. Such species include perennial pepperweed (*Lepidium latifolium*), French broom (*Genista monspessulana*), sweet fennel (*Foeniculum vulgare*), and pampas grass (*Cortaderia selloana*). Impacts related to invasive species would be reduced to a less than significant level through the implementation of mitigation measures described in Section V.7 (no. 22), which includes methods of minimizing the dispersal of invasive species. Therefore, the project is mitigated to consistency with this policy.

Policy BIO 1.8: *Restrict Use of Herbicides, Insecticides, and Similar Materials.* Encourage the use of integrated pest management and organic practices to manage pests with the least possible hazard to the environment. Restrict the use of insecticides, herbicides, or any toxic chemical substance in sensitive habitats, except when an emergency has been declared; the habitat itself is threatened; a substantial risk to public health and safety exists, including maintenance for flood control; or such use is authorized pursuant to a permit issued by the agricultural commissioner. Encourage nontoxic strategies for pest control, such as habitat management using physical and biological controls, as an alternative to chemical treatment, and allow use of toxic chemical substances only after other approaches have been tried and determined unsuccessful. Continue to implement the Integrated Pest Management ordinance for county-related operations.

Consistent: Impacts related to pesticide use would be reduced to a less than significant level through the implementation of mitigation measures described in Section V.7 (no. 8), which includes restrictions on use of herbicides in sensitive areas. Therefore, the project is mitigated to consistency with this policy.

Goal BIO 2: *Protection of Sensitive Biological Resources.* Require identification of sensitive biological resources and commitment to adequate protection and mitigation, and monitor development trends and resource preservation efforts.

Policy BIO 2.1: *Include Resource Preservation in Environmental Review.* Require environmental review pursuant to CEQA of development applications to assess the impact of

proposed development on native species and habitat diversity, particularly special-status species, sensitive natural communities, wetlands, and important wildlife nursery areas and movement corridors. Require adequate mitigation measures for ensuring the protection of any sensitive resources and achieving “no net loss” of sensitive habitat acreage, values, and function.

Consistent: The environmental review pursuant to CEQA has assessed the impacts of the proposed project on special-status species and sensitive communities (including wetlands). Mitigation measures described in Section V.7 (nos. 2 and 6) would be implemented to ensure “no net loss” of sensitive habitats. Therefore, the project is mitigated to consistency with this policy.

Policy BIO 2.2: *Limit Development Impacts*. Restrict or modify proposed development in areas that contain essential habitat for special-status species, sensitive natural communities, wetlands, baylands and coastal habitat, and riparian habitats, as necessary to ensure the continued health and survival of these species and sensitive areas. Development projects should preferably be modified to avoid impacts on sensitive resources, or to adequately mitigate impacts by providing on-site or (as a lowest priority) off-site replacement at a higher ratio.

Consistent: The proposed project would limit impacts to essential habitat for special-status species and sensitive natural communities. Although the proposed project would involve impacts to the tidal salt marsh and Corte Madera Creek, the amount of disturbance would be kept to the minimum area necessary to complete the work. Impacts would be reduced to a less than significant level through the implementation of mitigation measures described in Section V.7 (nos. 2–27). Therefore, the project is mitigated to consistency with this policy.

Policy BIO 2.3: *Preserve Ecotones*. Condition or modify development permits to ensure that ecotones, or natural transitions between habitat types, are preserved and enhanced because of their importance to wildlife. Ecotones of particular concern include those along the margins of riparian corridors, baylands and marshlands, vernal pools, and woodlands and forests where they transition to grasslands and other habitat types.

Consistent: The proposed project would minimize impacts to the transition area between the tidal salt marsh and upland areas to a less than significant level without mitigation.

Policy BIO 2.4: *Protect Wildlife Nursery Areas and Movement Corridors*. Ensure that important corridors for wildlife movement and dispersal are protected as a condition of discretionary permits, including consideration of cumulative impacts. Features of

particular importance to wildlife for movement may include riparian corridors, shorelines of the coast and bay, and ridgelines. Linkages and corridors shall be provided that connect sensitive habitat areas such as woodlands, forests, wetlands, and essential habitat for special-status species, including an assessment of cumulative impacts.

Consistent: The proposed project would impact potential movement corridors. The tidal salt marsh may serve as a dispersal corridor for California clapper rail, and Corte Madera Creek may serve as a migration corridor for the tidewater goby, Central California Coast steelhead, and Central California Coast coho salmon. Additionally, the area may serve as a movement corridor for other bird species, including those protected under the MBTA. However, impacts would be reduced to a less than significant level through the implementation of mitigation measures described in Section V.7 (nos. 23, 24). Therefore, the project is mitigated to consistency with this policy.

Policy BIO 2.5: *Restrict Disturbance in Sensitive Habitat During Nesting Season.* Limit construction and other sources of potential disturbance in sensitive riparian corridors, wetlands, and baylands to protect bird nesting activities. Disturbance should generally be set back from sensitive habitat during the nesting season from March 1 through August 1 to protect bird nesting, rearing, and fledging activities. Preconstruction surveys should be conducted by a qualified professional where development is proposed in sensitive habitat areas during the nesting season, and appropriate restrictions should be defined to protect nests in active use and ensure that any young have fledged before construction proceeds.

Consistent: As described in the mitigation measures in Section V.7 (nos. 22–24), construction activities within permitted work areas shall occur between September 1 and February 28 to reduce potential impacts to California clapper rail and from February 1 to June 30 to reduce potential impacts to California black rail breeding/nesting seasons. If construction must occur during these periods, pre-construction surveys for nesting birds will be conducted. If an active nest is found, the bird shall be identified to species and the approximate distance from the closest work site to the nest estimated. No additional measures need be implemented if active nests are more than 300 feet from the nearest work site. If active nests are closer than 300 feet to the nearest work site and there is the potential for destruction of a nest or substantial disturbance to nesting birds due to construction activities, a plan to monitor nesting birds during construction shall be prepared and submitted to the USFWS and CDFG for review and approval. Disturbance of active nests shall be avoided until it is determined that nesting is complete and the young have fledged.

Additionally, as described in the mitigation measures in Section V.7 (nos. 22–24), shrub and tree trimming and/or removal activities associated with the proposed project would be conducted outside the nesting season (generally between February 1 and August 31). If shrub and tree removal is scheduled to occur during the nesting season, a qualified wildlife biologist, familiar with the species and habitats in the Study Area, would conduct preconstruction surveys for nesting birds with suitable nesting habitat in the Study Area. The nesting bird surveys should be conducted within one week before initiation of construction activities within those habitats. If no active nests are detected during surveys, construction may proceed. If active nests are found, a no-disturbance buffer would be established around nests identified during preconstruction surveys. Preconstruction nest surveys would be conducted to minimize impacts to birds protected by the MBTA.

Policy BIO 2.8: *Coordinate with Trustee Agencies.* Consult with trustee agencies (CDFG, USFWS, National Oceanic and Atmospheric Administration Fisheries, USACOE, U.S. Environmental Protection Agency [USEPA], RWQCB, and BCDC during environmental review when special-status species, sensitive natural communities, or wetlands may be adversely affected.

Consistent: Consultation with trustee agencies has been an integral part of the proposed project thus far. Informal discussions with the following agencies have occurred: USACOE, National Marine Fisheries Service, RWQCB, and BCDC to gather input regarding impacts to special-status species and sensitive communities. Informal consultation with the USFWS was initiated on June 10, 2009 during an interagency meeting held by the USACOE. Agencies in attendance for this meeting included: USACOE, USFWS, USEPA, U.S. Coast Guard, BCDC, RWQCB, and TAM.

Policy BIO 2.9: *Promote Early Coordination with Other Agencies.* Require applicants to consult with all agencies with review authority for projects in areas supporting wetlands and special-status species at the outset of project planning.

Consistent: See Policy BIO 2.8 above.

Goal BIO 3: *Wetland Conservation.* Require all feasible measures to avoid and minimize potential adverse impacts on existing wetlands and to encourage programs for restoration and enhancement of degraded wetlands.

Policy BIO 3.1: *Protect Wetlands.* Require development to avoid wetland areas so that the existing wetlands and upland buffers are preserved and opportunities for enhancement are retained (areas within setbacks may contain significant resource values similar to those

within wetlands and also provide a transitional protection zone). Establish a Wetland Conservation Area (WCA) for jurisdictional wetlands to be retained, which includes the protected wetland and associated buffer area. Development shall be set back a minimum distance to protect the wetland and provide an upland buffer. Larger setback standards may apply to wetlands supporting special-status species or associated with riparian systems and baylands under tidal influence, given the importance of protecting the larger ecosystems for these habitat types as called for under Stream Conservation and Baylands Conservation policies defined in Policy BIO 4.1 and BIO 5.1, respectively. Regardless of parcel size, a site assessment is required either where incursion into a WCA is proposed or where full compliance with all WCA criteria would not be met. Employ the following criteria when evaluating development projects that may impact wetland areas:

*City-Centered Corridor:*

- For parcels more than 2 acres in size, a minimum 100-foot development setback from wetlands is required.
- For parcels between 2 and 0.5 acres in size, a minimum 50-foot development setback from wetlands is required.
- For parcels less than 0.5 acres in size, a minimum 20-foot development setback from wetlands is required. The developed portion(s) of parcels (less than 0.5 acres in size) located behind an existing authorized flood control levee or dike are not subject to a development setback.
- Regardless of parcel size, an additional buffer may be required based on the results of a site assessment, if such an assessment is determined to be necessary. Site assessments will be required and conducted pursuant to Program BIO-3.c, Require Site Assessment

Consistent: A wetland delineation was conducted in the spring of 2008 to determine the presence and extent of waters of the U.S. within the Study Area, which included a tidal salt marsh and “other” waters (i.e., Corte Madera Creek and tidal channels). The delineation identified 0.61 acre (0.25 hectare) of tidal salt marsh wetlands.

The proposed project would involve impacts to the tidal salt marsh, which would result in an estimated 0.03 acre (0.01 hectare) of permanent loss and 0.38 acre (0.15 hectare) of temporary disturbance. The area of temporary disturbance would be restored to preconstruction conditions through replanting/reseeding. The area of permanent loss

would be mitigated through the creation, restoration, or habitat set aside in perpetuity in a 2:1 replacement ratio for on-site mitigation and a minimum 3:1 replacement ratio for off-site mitigation. Alternately, mitigation credits may be purchased through a USFWS approved mitigation bank, if available. If no mitigation bank is available, mitigation may be accomplished through support of existing or planned conservation projects. Impacts to wetlands would be reduced to a less than significant level through the implementation of mitigation measures described in Section V.7 (nos. 2, 6). Therefore, the project is mitigated to consistency with this policy.

Policy BIO 3.2: *Require Thorough Mitigation.* Where avoidance of wetlands is not possible, require provision of replacement habitat on-site through restoration and/or habitat creation at a minimum ratio of 2 acres for each acre lost (2:1 replacement ratio) for on-site mitigation and a minimum 3:1 replacement ratio for off-site mitigation. Mitigation wetlands should be of the same type as those lost and provide habitat for the species that use the existing wetland. Mitigation should also be required for incursion within the minimum WCA setback/transition zone.

Consistent: See Policy BIO 3.1 above.

Goal BIO 4: *Riparian Conservation.* Protect and, where possible, restore the natural structure and function of riparian systems.

Policy BIO 4.1: *Restrict Land Use in Stream Conservation Area (SCA).* A SCA is established to protect the active channel, water quality and flood control functions, and associated fish and wildlife habitat values along streams. Development shall be set back to protect the stream and provide an upland buffer, which is important to protect significant resources that may be present and provides a transitional protection zone. Best management practices (BMPs) shall be adhered to in all designated SCAs. BMPs are also strongly encouraged in ephemeral streams not defined as SCAs. Exceptions to full compliance with all SCA criteria and standards may be allowed only if the following is true:

1. A parcel falls entirely within the SCA; or
2. Development on the parcel entirely outside the SCA either is infeasible or would have greater impacts on water quality, wildlife habitat, other sensitive biological resources, or other environmental constraints than development within the SCA.

SCAs are designated along perennial, intermittent, and ephemeral streams as defined in the Countywide Plan Glossary. Regardless of parcel size, a site assessment is required

where incursion into an SCA is proposed or where full compliance with all SCA criteria would not be met. An ephemeral stream is subject to the SCA policies if it: (a) supports riparian vegetation for a length of 100 feet or more, and/or (b) supports special-status species and/or a sensitive natural community type, such as native grasslands, regardless of the extent of riparian vegetation associated with the stream. For those ephemeral streams that do not meet these criteria, a minimum 20-foot development setback should be required. SCAs consist of the watercourse itself between the tops of the banks and a strip of land extending laterally outward from the top of both banks to the widths defined below (see Figure 2-2). The SCA encompasses any jurisdictional wetland or unvegetated other waters within the stream channel, together with the adjacent uplands, and supersedes setback standards defined for WCAs. Human-made flood control channels under tidal influence are subject to the Bayland Conservation policies. The following criteria shall be used to evaluate proposed development projects that may impact riparian areas:

*City-Centered Corridor:*

- For parcels more than 2 acres in size, provide a minimum 100-foot development setback on each side of the top of bank.
- For parcels between 2 and 0.5 acres in size, provide a minimum 50-foot development setback on each side of the top of bank.
- For parcels less than 0.5 acres in size, provide a minimum 20-foot development setback. The developed portion(s) of parcels (less than 0.5 acres in size) located behind an existing authorized flood control levee or dike are not subject to a development setback.
- Regardless of parcel size, an additional buffer may be required based on the results of a site assessment. A site assessment may be required to confirm the avoidance of woody riparian vegetation and to consider site constraints, presence of other sensitive biological resources, options for alternative mitigation, and determination of the precise setback. Site assessments will be required and conducted pursuant to Program BIO-4.g, Require Site Assessment.

Consistent: The proposed project would occur in a SCA as defined in the Marin CWP because of the work within Corte Madera Creek and the tidal channels. As previously described, there would be impacts to the creek, tidal channel, and tidal salt marsh due to the potential use of a barge for construction within the creek, temporary construction access, and the placement of permanent structures within the tidal channel and salt

marsh. However, the impacts would be kept to the minimum area necessary to complete the work. Impacts to wetlands would be reduced to a less than significant level through the implementation of mitigation measures described in Section V.7 (2, 6). Therefore, the project is mitigated to consistency with this policy.

Policy BIO 4.2: *Comply with SCA Regulations.* Implement established setback criteria for protection of SCAs through established discretionary permit review processes and/or through adoption of new ordinances. Environmental review shall be required where incursion into an SCA is proposed and a discretionary permit is required.

In determining whether allowable uses are compatible with SCA regulations, development applications shall not be permitted if the project does any of the following:

- Adversely alters hydraulic capacity;
- Causes a net loss in habitat acreage, value, or function;
- Degrades water quality.

Consistent: The proposed project would result in impacts to a SCA (i.e., Corte Madera Creek). Impacts to the creek have been evaluated as part of the environmental review process. Discretionary permits would be obtained prior to construction. The proposed project would comply with the allowable uses compatible with the SCA regulations, because the project would not adversely alter hydraulic capacity; cause a net loss in habitat acreage, value, or function; or degrade the water quality.

Policy BIO 4.3: *Manage Stream Conservation Effectively.* Review proposed land divisions in SCAs to allow management of a stream by one property owner to the extent possible.

Consistent: The proposed project is located within multiple rights-of-way (Caltrans, SMART, and city of Larkspur). An agreement would be reached prior to construction to specifying one agency or a Joint Powers Authority as the owner/operator responsible for managing the SCA in accordance with the goals and policies described in the CWP. This would help to avoid conflicts in management preferences as well as efficiently resolve issues and decisions making regarding the SCA.

Policy BIO 4.4: *Promote Natural Stream Channel Function.* Retain and, where possible, restore the hydraulic capacity and natural functions of stream channels in SCAs. Discourage alteration of the bed or banks of the stream, including filling, grading, excavating, and installation of storm drains and culverts. When feasible, replace impervious surfaces

with pervious surfaces. Protect and enhance fish habitat, including through retention of large woody debris, except in cases where removal is essential to protect against property damage or prevent safety hazards. In no case shall alterations that create barriers to fish migration be allowed on streams mapped as historically supporting salmonids. Alteration of natural channels within SCAs for flood control should be designed and constructed in a manner that retains and protects the riparian vegetation, allows for sufficient capacity and natural channel migration, and allows for reestablishment of woody trees and shrubs without compromising the flood flow capacity where avoidance of existing riparian vegetation is not possible.

Consistent: The proposed project would potentially impact the SCA. However, it would not alter the hydraulic capacity or function of Corte Madera Creek. No barriers to fish passage would be created within Corte Madera Creek. The multi-use pathway would be designed and constructed in a manner that impacts to the SCA would only include the minimum area necessary to complete the work. Impacts to the SCA would be reduced to a less than significant level through the implementation of mitigation measures described in Section V.7 (nos. 3, 4, 15, 18, 26, 27). Therefore, the project is mitigated to consistency with this policy.

Policy BIO 4.5: *Restore and Stabilize Stream Channels.* Pursue stream restoration and appropriate channel redesign where sufficient right-of-way exists that includes the following: a hydraulic design, a channel plan form, a composite channel cross-section that incorporates low flow and bankfull channels, removal and control of invasive exotic plant species, and biotechnical bank stabilization methods to promote quick establishment of riparian trees and other native vegetation.

Consistent: Impacts to the tidal salt marsh would be mitigated by restoring and stabilizing disturbed areas. As described in the mitigation measures in Section V.7 (nos. 1, 6), the impacts to the tidal salt marsh would be offset through the creation and restoration of habitat in a ratio to be determined in coordination with federal regulatory agencies. Therefore, the project is mitigated to consistency with this policy.

Policy BIO 4.6: *Control Exotic Vegetation.* Remove and replace invasive exotic plants with native plants as part of stream restoration projects and as a condition of site-specific development approval in an SCA, and include monitoring to prevent reestablishment.

Consistent: Restoration of the tidal salt marsh would include the establishment of vegetation native to the area. The implementation of mitigation measures in Section V.7 (no. 22) would reduce the effects below a level of significance. Therefore, the project is mitigated to consistency with this policy.

Policy BIO 4.7: *Protect Riparian Vegetation.* Retain riparian vegetation for stabilization of streambanks and floodplains, moderating water temperatures, trapping and filtering sediments and other water pollutants, providing wildlife habitat, and aesthetic reasons.

Consistent: Riparian vegetation would be protected through the use of mitigation measures described in Section V.7 (nos. 2, 3, 4, 6, 8, 18, 19). However, impacts to the vegetation would occur. The implementation of these mitigation measures would be used to protect the riparian vegetation and reduce the impacts to below a significant level. Therefore, the project is mitigated to consistency with this policy.

Policy BIO 4.8: *Reclaim Damaged Portions of SCAs.* Restore damaged portions of SCAs to their natural state wherever possible, and reestablish as quickly as possible any herbaceous and woody vegetation that must be removed within an SCA, replicating the structure and species composition of indigenous native riparian vegetation.

Consistent: Impacts to the SCA would be offset through the restoration of the affected area through re-establishing the native riparian vegetation. The implementation of the mitigation measures described in Section V.7 (no. 2) would reduce the impacts below a level of significance. Therefore, the project is mitigated to consistency with this policy.

Policy BIO 4.10: *Promote Interagency Cooperation.* Work in close cooperation with flood control districts, water districts, and wildlife agencies in the design and choice of materials for construction and alterations within SCAs.

Consistent: See Policy BIO 2.8.

Policy BIO 4.11: *Promote Riparian Protection.* Support agencies, organizations, and programs in Marin County that protect, enhance, and restore riparian areas.

Consistent: To offset permanent impacts to the tidal salt marsh, habitat would be created, restored, or set aside in perpetuity in a ratio to be determined in coordination with regulatory agencies. Alternately, mitigation credits may be purchased through an approved mitigation bank, if available. If no mitigation bank is available, mitigation may be accomplished through support of existing or planned conservation projects. The implementation of the mitigation measures described in Section V.7 (no. 2) would reduce the effects below a level of significance. Therefore, the project is mitigated to consistency with this policy.

Policy BIO 4.12: *Support and Provide Riparian Education Efforts.* Educate the public and County staff about the values, functions, and importance of riparian areas. Landowner education

regarding the sensitivity of riparian corridors will be provided as part of the Natural Resource Information Program called for in Program BIO-1.c. An emphasis will be placed on public outreach to owners of developed properties encompassing or adjacent to SCAs where minimum setback distances are not provided. Information on regulations protecting riparian corridors should be available, together with general methods to minimize disturbance and improve habitat values. An updated list of regulatory agencies and their contact information should be maintained as part of the Natural Resource Information Program.

Consistent: Education of the public regarding the sensitive natural communities impacts would be included as part of the public outreach process conducted for the proposed project. Additionally, prior to the onset of construction activities, a qualified biologist would conduct an education program for all construction personnel. At a minimum, the training would include a description of the special-status species, their habitats, and the occurrence of these species within the Study Area described in Section V.7 (no. 7). The proposed project will incorporate signage addressing riparian education for the public. Therefore, the project is mitigated to consistency with this policy.

Policy BIO 4.13: *Provide Appropriate Access in SCAs.* Ensure that public access to publicly owned land within SCAs respects the environment, and prohibit access if it will degrade or destroy riparian habitat. Acquire public lands adjacent to streams where possible to make resources more accessible and usable for passive recreation, and to protect and enhance streamside habitat.

Consistent: Construction of the proposed project would result in the construction of a multi-use pathway that would extend into the SCA.

Policy BIO 4.15: *Reduce Wet Weather Impacts.* Ensure that development work adjacent to and potentially affecting SCAs is not done during the wet weather or when water is flowing through streams, except for emergency repairs, and that disturbed soils are stabilized and replanted, and areas where woody vegetation has been removed are replanted with suitable species before the beginning of the rainy season.

Consistent: Construction within Corte Madera Creek, which is a perennially flowing watercourse, would occur. However, work within the creek, tidal channel, and tidal salt marsh would be conducted outside the Central and Northern California rainy season of October 15 through April 15, or mitigation measures would reduce impacts described in Section V.7 (no. 8). Therefore, the project is mitigated to consistency with this policy.

Policy BIO 4.16: *Regulate Channel and Flow Alteration.* Allow alteration of stream channels or reduction in flow volumes only after completion of environmental review, commitment to appropriate mitigation measures, and issuance of appropriate permits by jurisdictional agencies based on determination of adequate flows necessary to protect fish habitats, water quality, riparian vegetation, natural dynamics of stream functions, groundwater recharge areas, and downstream users.

Consistent: Impacts to Corte Madera Creek would not affect flow volumes, because the permanent structures that would be placed within the creek would be relatively minor in comparison to the size and capacity of the creek. Adequate flows would be maintained to protect fish habitats, water quality, riparian vegetation, natural dynamics of stream functions, groundwater recharge, and downstream users.

Policy BIO 4.18: *Promote the Use of Permeable Surfaces when Hardscapes are Unavoidable in the SCAs and Wetland Conservation Areas.* Permeable surfaces rather than impermeable surfaces shall be required wherever feasible in the SCA and WCA.

Consistent: Construction of the multi-use pathway within the SCA and Wetland Conservation Area would require the use of a non-permeable surface (i.e., concrete, steel). Therefore, the use of hardscaped surfaces within these areas is necessary. The portion of the existing multi-use pathway that would be replaced would include the use of wood to match the existing conditions.

Policy BIO 4.19: *Maintain Channel Stability.* Applicants for development projects may be required to prepare a hydraulic and/or geomorphic assessment of on-site and downstream drainageways that are affected by project area runoff. This assessment should be required where evidence that significant current or impending channel instability is present, such as documented channel bed incision, lateral erosion of banks (e.g., sloughing or landsliding), tree collapse due to streambank undermining and/or soil loss, or severe in-channel sedimentation, as determined by the County.

Characteristics pertinent to channel stability would include hillslope erosion, bank erosion, excessive bed scour or sediment deposition, bed slope adjustments, lateral channel migration or bifurcation, channel capacity, and the condition of riparian vegetation. The hydraulic and/or geomorphic assessment shall include on-site channel or drainageway segments over which the applicant has control or access. In the event that project development would result in or further exacerbate existing channel instabilities, the applicant could either propose his/her own channel stabilization program subject to County approval or defer to the mitigations generated during the required environmental review for the project, which could include maintenance of

peak flows at pre- and post-project levels, or less. Proposed stabilization measures shall anticipate project-related changes to the drainageway flow regime.

All project improvements should be designed to minimize flood hydrograph peak flow or flood volume increases into drainage courses. To this end, design features such as porous pavement, pavers, maximizing overall permeability, drainage infiltration, disconnected impervious surfaces, swales, bioretention, green roofs, etc., should be integrated into projects as appropriate.

For projects subject to discretionary review, the applicant may be required, as appropriate, to submit a pre-and post-project hydrology and hydraulic report detailing the amount of new impervious surface area and accompanying surface runoff from all improvement areas, including driveways — with a goal of zero increase in runoff (no net increase in peak off-site runoff). The applicant may be required to participate in a peak stormwater runoff management program developed pursuant to new Program BIO 4.20.

Consistent: The proposed project is not anticipated to alter channel stability. A Location Hydraulic Study Report and Preliminary Foundation Report have been prepared for this project.

#### Water Resource (WR) Goals and Policies

Goal WR 1: *Healthy Watersheds.* Achieve and maintain proper ecological functioning of watersheds, including sediment transport, groundwater recharge and filtration, biological processes, and natural flood mitigation, while ensuring high-quality water.

Policy WR 1.1: *Protect Watersheds and Aquifer Recharge.* Give high priority to the protection of watersheds, aquifer-recharge areas, and natural drainage systems in any consideration of land use.

Consistent: No impacts to the watershed would occur as a result of the proposed project.

Policy WR 1.3: *Improve Infiltration.* Enhance water infiltration throughout watersheds to decrease accelerated runoff rates and enhance groundwater recharge. Whenever possible, maintain or increase a site's predevelopment infiltration to reduce downstream erosion and flooding.

Consistent: The proposed project would increase the amount of impervious surface within the Study Area. However, the additional area would be minimal. Additionally, the use of BMPs, as discussed in Section V.4, would reduce soil erosion.

Policy WR 1.4: *Protect Upland Vegetation*. Limit development and grazing on steep slopes and ridgelines in order to protect downslope areas from erosion and to ensure that runoff is dispersed adequately to allow for effective infiltration.

Consistent: Construction of the pathway would result in the removal of vegetation in the upland areas. However, all disturbed areas will be reseeded/replanted through the implementation of the mitigation measure as described in Section V.7 (no. 7).

Goal WR 2: *Clean Water*. Ensure that surface and groundwater supplies are sufficiently unpolluted to support local natural communities, the health of the human population, and the viability of agriculture and other commercial uses (Policies on water availability are found in the Public Facilities and Services Section of the Built Environment Element).

Policy WR 2.3: *Avoid Erosion and Sedimentation*. Minimize soil erosion and discharge of sediments into surface runoff, drainage systems, and water bodies. Continue to require grading plans that address avoidance of soil erosion and on-site sediment retention. Require developments to include on-site facilities for the retention of sediments, and, if necessary, require continued monitoring and maintenance of these facilities upon project completion.

Consistent: See Policies WR 1.3 and 1.4

#### Environmental Hazard (EH) Goals and Policies

Goal EH 2: *Safety from Seismic and Geologic Hazards*. Protect people and property from risks associated with seismic activity and geologic conditions.

Policy EH 2.1: *Avoid Hazard Areas*. Require development to avoid or minimize potential hazards from earthquakes and unstable ground conditions.

Consistent: The proposed project will be designed to minimize impacts from earthquakes and unstable ground conditions. The Study Area is located within areas considered to be of very high and high potential for liquefaction. The subsurface condition was evaluated as part of an initial geotechnical investigation, and it was determined that overall liquefaction potential is relatively low. The area has also not been identified by the California Geologic Survey as a hazard zone for liquefaction of landslides. Although geological hazards have potential to occur in the Study Area, their impacts would be considered during design and construction of the proposed project

Policy EH 2.2: *Comply with the Alquist-Priolo Act*. Continue to implement and enforce the Alquist-Priolo Earthquake Fault Zoning Act.

- Consistent: The proposed project is not located within an Alquist Priolo Zone or other seismic hazard area.
- Policy EH 2.3: *Ensure Seismic Safety of New Structures.* Design and construct all new buildings to be earthquake resistant. The minimum level of design necessary would be in accordance with seismic provisions and criteria contained in the most recent version of the State and County Codes. Construction would require effective oversight and enforcement to ensure adherence to the earthquake design criteria.
- Consistent: See Policy EH 2.1.
- Goal EH 3: *Safety from Flooding and Inundation.* Protect people and property from risks associated with flooding and inundation. (Also see the Public Facilities and Water Resources sections).
- Policy EH 3.2: *Retain Natural Conditions.* Ensure that flow capacity is maintained in stream channels and floodplains, and achieve flood control using biotechnical techniques instead of storm drains, culverts, riprap, and other forms of structural stabilization.
- Consistent: The proposed multi-use pathway would not be located within the open waters of Corte Madera Creek and would not alter stream flow characteristics. Although the proposed project would occur within the 100-year floodplain, it would be designed to withstand such an event.

#### Atmosphere and Climate (AIR) Goals and Policies

- Goal AIR 1: *Improved Regional Air Quality.* Promote planning and programs that result in the reduction of airborne pollutants measured within the county and the Bay Area.
- Policy AIR 1.3: *Require Mitigation of Air Quality Impacts.* Require projects that generate potentially significant levels of air pollutants, such as quarry, landfill operations, or large construction projects, to incorporate best available air quality mitigation in the project design.
- Consistent: Construction activities typically result in emissions of particulate matter (PM), usually in the form of fugitive dust from activities such as demolition, excavation, grading, and vehicle travel on unpaved surfaces. Implementation of mitigation measure no. 1, as described in Section V.5, would reduce the project's construction-related dust impacts to a less than significant level. Construction activities would also result in the emission of other criteria pollutants from equipment exhaust and construction-related vehicular activity. However, construction emissions are not expected to impede

attainment or maintenance of ozone standards in the Bay Area, and the proposed project's impact related to construction equipment emissions would be less than significant.

#### Open Space (OS) Goals and Policies

Goal OS 2: *Preservation of Open Space for the Benefit of the Environment and Marin Residents.* Close the gaps in the pattern of protected public open space and private lands where land acquisition or other methods of preservation would create or enhance community separators, wildlife corridors, watershed and baylands protection, riparian corridors, sensitive habitat, or trail connections.

Policy OS 2.1: *Support Countywide Open Space Planning.* Encourage Marin's public land management agencies to review the existing public open space system and prepare proactive, long-range plans to guide future land acquisition and preservation efforts consistent with their respective missions, and to create an interconnected system of public open space.

- Corte Madera Bayfront. Existing marshes should be preserved, and portions of the San Quentin area should be considered for public access to the bay. The Corte Madera Ecological Reserve has been established in this area and provides habitat for the endangered clapper rail.

Consistent: The proposed project would impact tidal salt marsh along the north bank of Corte Madera Creek. However, the impacts would be mitigated as described in Section V.7 (nos. 2, 3, 4, 6, 8, 18, 19). Therefore, the proposed project would be consistent with this policy.

#### Trails (TRL) Goals and Policies

Goal TRL 1: *Trail Network Preservation and Expansion.* Preserve existing trail routes designated for public use on the Marin Countywide Trails Plan maps, and expand the public trail network for all user groups, where appropriate. Facilitate connections that can be used for safe routes to school and work.

Policy TRL 1.1: *Protect the Existing Countywide Trail System.* Maintain the existing countywide trail system and protect the public's right to access it.

Consistent: The proposed pathway would connect to the existing multi-use pathway located along the north bank of Corte Madera Creek and access would be maintained during construction.

Policy TRL 2.1: *Expand the Countywide Trail System.* Acquire additional trails to complete the proposed countywide trail system, providing access to or between public lands and enhancing public trail use opportunities for all user groups, including multi-use trails, as appropriate.

Consistent: The proposed project has been identified in the CWP as a proposed trail. The proposed multi-use pathway would expand the countywide trail system and connect to an existing pathway along Corte Madera Creek and the future Cal Park Hill Tunnel Parkway.

Goal TRL 2: *Appropriate Trail Design, Location, Management, and Maintenance.* Design, build, manage, and maintain trails, as appropriate, in a manner compatible with natural resource protection. Ensure safe trails. Ensure that trails are managed and maintained in a sustainable manner.

Policy TRL 2.1: *Preserve the Environment.* In locating and designing trails, protect sensitive habitat and natural resources by avoiding those areas.

Consistent: The proposed project would impact sensitive habitat and natural resources. However, these impacts would be mitigated as described in Section V.7 (nos. 3, 8, 19). Therefore, the project would be consistent with this policy.

Policy TRL 2.5: *Provide Access for Persons with Disabilities.* Design and develop trails and trail programs to enhance accessibility by persons with disabilities.

Consistent: The proposed multi-use pathway will be designed to be in compliance with the Americans with Disabilities Act.

#### Community Design (DES) Goals and Policies

Goal DES 4: *Protection of Scenic Resources.* Minimize visual impacts of development and preserve vistas of important natural features.

Policy DES 4.1: *Preserve Visual Quality.* Protect scenic quality and views of the natural environment – including ridgelines and upland greenbelts, hillsides, water, and trees – from adverse impacts related to development.

Consistent: The proposed project would not substantially reduce, obscure, or degrade a scenic vista. Views toward Mt. Tamalpais, Corte Madera Creek, and the San Francisco Bay are considered scenic and valuable to the community. Overall, the visual quality of the view for motorists traveling northbound on U.S. Highway 101 would be slightly

enhanced, and the view for motorists, bicyclists, and pedestrians traveling along westbound East Sir Francis Drake Boulevard would be slightly decreased. Bridge design and lighting strategies would be implemented as part of the design to minimize impacts to visual resources. Additionally, the multi-use pathway would include viewing areas over the tidal salt marsh along Corte Madera Creek, which would enhance the viewing opportunities of the creek.

Goal DES 5: *Attractive and Functional Streets and Parking Areas.* Design automobile use areas to fit the character of the community, and comfortably accommodate travel by pedestrians and bicyclists, while still meeting health, safety, and emergency access needs

Policy DES 5.1: *Achieve Streetscape Compatibility.* Ensure that roadways, parking areas, and pedestrian and bike movement are functionally and aesthetically appropriate to the areas they serve.

Consistent: The purpose of the project is to enhance non-motorized travel (i.e., pedestrians and bicycles) within the Study Area. The proposed project would be functional and aesthetically appropriate for the area.

#### Transportation (TR) Goals and Policies

Goal TR 1: *Safe and Efficient Movement of People and Goods.* Provide a range of transportation options that meet the needs of residents, businesses, and travelers.

Policy TR 1.1: *Manage Travel Demand.* Improve the operating efficiency of the transportation system by reducing vehicle travel demand and provide opportunities for other modes of travel. Before funding transportation improvements consider alternatives – such as Transportation Demand Management – and prioritize projects that will reduce fossil fuel use and reduce single-occupancy vehicle trips.

Consistent: Implementation of the proposed project would enhance non-motorized travel and as a result may reduce vehicle travel demand in the Study Area.

Goal TR 2: *Increased Bicycle and Pedestrian Access.* Expand bicycle and pedestrian facilities and access in and between neighborhoods, employment centers, shopping areas, schools, and recreational sites.

Policy TR 2.1: *Improve the Bicycle and Pedestrian Network.* Promote adequate bicycle and pedestrian links, to the extent feasible, throughout the county, including streetscape improvements and standards that are safe and pedestrian and bicycle friendly.

Consistent: The proposed project would improve the bicycle and pedestrian network within the Study Area through the construction of a multi-use pathway. This pathway would connect to an existing pathway along Corte Madera Creek and to the Cal Park Hill Tunnel Parkway project north of the Study Area.

Policy TR 2.2: *Provide New Bicycle and Pedestrian Facilities.* Where appropriate, require new development to provide trails or roadways and paths for use by bicycles and/or on-street bicycle and pedestrian facilities. In-lieu fees may be accepted if warranted in certain cases.

Consistent: The proposed project would provide a new multi-use pathway to enhance non-motorized travel within the Study Area.

Goal TR 4: *Protection of Environmental Resources.* Minimize environmental disruption and energy use related to transportation.

Policy TR 4.1: *Minimize Disturbance and Condemnation.* Limit environmental disruption and condemnation of land due to transportation projects.

Consistent: Although the proposed project would include impacts to the natural environment, this would be mitigated as described in Section V.7 (nos. 3, 8, 19). Therefore, the proposed project would be consistent with this policy.

#### Noise (NOS) Goals and Policies

Goal NOS 1: *Protection from Excessive Noise.* Ensure that new land uses, transportation activities, and construction do not create noise levels that impair human health or quality of life.

Policy NOS 1.2: *Minimize Transportation Noise.* Ensure that transportation activities do not generate noise beyond acceptable levels, including in open space, wilderness, wildlife habitat, and wetland areas.

Consistent: Construction noise associated with the proposed project would result in a temporary increase in conditions in the project area. However, construction activities would be sporadic and short term in duration. Implementation of mitigation measure, as described in Section V.10 (no. 28), would reduce excessive construction noise impacts to less than significant levels. Operation of the multi-use pathway would not increase noise disturbance associated with transportation. Therefore, the proposed project would be consistent with this policy.

## Public Health (PH) Goals and Policies

Goal PH 1: *Reduced Rates of Obesity, Eating Disorders, and Chronic Disease Such as Heart Disease and Breast Cancer.* Improve individual and community health through prevention, screening, education, and treatment strategies regarding nutrition and physical activity related health issues.

Policy PH 1.2: *Promote Physical Activity.* Increase opportunities for and interest in safe and pleasant physical activity.

Consistent: The proposed project would provide additional opportunities for physical activity through bicycling and walking.

## Historical and Archaeological Resources (HAR) Goals and Policies

Goal HAR 1: *Historical Resource Protection.* Identify and protect archaeological and historical resources as major contributors to quality of life and community vitality in Marin.

Policy HAR 1.1: *Preserve Historical Resources.* Identify archaeological and historical resource sites.

Consistent: The potential for cultural resources to occur within the Study Area has been evaluated as part of this project. It was determined that the proposed project would not disturb paleontological, archaeological, or historic sites.

Policy HAR 1.3: *Avoid Impacts to Historical Resources.* Ensure that human activity avoids damaging cultural resources.

Consistent: See Policy HAR 1.1

c) <b>Affect agricultural resources, operations, or contracts (e.g., impacts to soils or farmlands, impacts from incompatible land uses, or conflicts with Williamson Act contracts)?</b> (source #(s): 1)	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[ ]	[X]

The proposed project would not have any impacts to agricultural resources, because the Study Area is located within non-agriculturally zoned and public lands. Also, the Study Area is not located within any property under a Williamson Act contract.

d) <b>Disrupt or divide the physical arrangement of an established community (including a low-income or minority community)?</b> (source #(s): 1, 2, 3)	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[ ]	[X]

The proposed project would not divide the physical arrangement of an established community, because the project would not involve any changes in land use and would enhance non-motorized travel in the area.

e) <b>Result in substantial alteration of the character or functioning of the community, or present or planned use of an area?</b> (source #(s): Not applicable)	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

The proposed project would not substantially alter the character or functioning of the community, because the project would not involve any changes in land use and would enhance non-motorized travel in the area.

f) <b>Substantially increase the demand for neighborhood or regional parks or other recreational facilities, or affect existing recreational opportunities?</b> (source #(s): 1, 2)	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[ ]	[X]

The proposed project would not increase the residential population in the area and, therefore, would not result in the need for additional neighborhoods, parks, or other recreational facilities. The project would have a beneficial impact on recreation from the construction of a multi-use pathway to serve multi-modal access to other recreational facilities including the Cal Park Hill Tunnel Pathway.

2. POPULATION AND HOUSING. *Would the proposal:*

a) <b>Increase density that would exceed official population projections for the planning area within which the project site is located as set forth in the Countywide Plan and/or community plan?</b> (source #(s): 1, 2)	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project would not increase the population.

b) <b>Induce substantial growth in an area either directly or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?</b> (source #(s): 17)	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project is located in a developed area, and the construction and operation of the multi-use pathway would not induce growth in the area.

c) <b>Displace existing housing, especially affordable housing?</b> (source #(s): 3, 17)	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project would not displace any housing.

3. **GEOPHYSICAL.** *Would the proposal result in or expose people to potential impacts involving:*

- |  |                       |   |                                    |                   |
|--|-----------------------|---|------------------------------------|-------------------|
| a) <b>Location in an area of geological hazards including but not necessarily limited to:</b><br><b>1) active or potentially active fault zones;</b><br><b>2) landslides or mudslides; 3) slope instability or ground failure; 4) subsistence; 5) expansive soils; 6) liquefaction; 7) tsunami; or 8) similar hazards?</b><br><b>(source #(s): 1, 4)</b> | Significant<br>Impact | Potentially<br>Significant<br>Unless<br>Mitigated | Less than<br>Significant<br>Impact | Not<br>Applicable |
|--|-----------------------|---|------------------------------------|-------------------|

[ ]                      [ ]                      [X]                      [ ]

A preliminary geotechnical report was prepared to evaluate the soil conditions within the proposed project’s Study Area. General geologic features pertaining to the site were evaluated by reference to the Geologic Map of the San Francisco Bay Region, California. The proposed project is located within nine miles from the San Andreas Fault Zone. Review of the resource maps maintained by the Marin County Community Development Agency determined that that proposed project is not located within an Alquist Priolo Zone or other seismic hazard area. According to the “Liquefaction Susceptibility Hazard” Map (2-11) in the Marin CWP (Appendix A: 1), the Study Area is located within areas considered to be of very high and high potential for liquefaction. The subsurface condition was evaluated as part of an initial geotechnical investigation, and it was determined that overall liquefaction potential is relatively low. The area is not identified by the California Geologic Survey as a hazard zone for liquefaction of landslides. However, the San Francisco Bay area is considered a seismically active region. Although geological hazards have potential to occur in the Study Area, their impacts would be considered during design and construction of the proposed project. Therefore, the impacts associated with these hazards are considered less than significant.

A subsequent geotechnical study may be conducted to obtain more specific subsurface soil conditions as part of the design process. Specifically, the survey would be used to accurately locate the depth of bedrock within the tidal salt marsh. The information from this survey will be used to design the multi-use pathway support structures.

b) <b>Substantial erosion of soils due to wind or water forces and attendant siltation from excavation, grading, or fill?</b> (source #(s): 7, 8)	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

Soil within the Study Area has not been rated for severity of erosion capacity, because it is mostly fill material. Generally, the soil north of the Study Area is more susceptible to erosion. Due to the relatively flat topography and disturbance from prior land uses within the Study Area, earthwork would be expected to be minimal and limited to preparation of the site. The potential for soil erosion and loss of topsoil would be greatest during the period of site grading, and also between the time when grading is completed and building construction is started. Areas not paved or covered would be properly graded and landscaped to prevent soil loss. The area of disturbed soil would be kept to the minimum amount necessary to complete the work. As described in Mitigation Measure 26, work within an inundated drainage, channel, wetland, or in-water work, would be conducted outside the Central and Northern California rainy season of October 15 through April 15. The impacts associated with erosion of soils due to wind or water forces are considered less than significant with the implementation of construction BMPs. Construction BMPs may include, but would not be limited to the following:

**Construction BMPs**

- Soil stabilization practices
  - Preservation of existing vegetation
  - Install temporary fence (Type: Environmentally Sensitive Area)
  - Install hydraulic mulch
- Install the following sediment control practices
  - Silt fence
  - Fiber rolls
  - Storm drain inlet protection
  - Sediment/desilting basin
  - Sediment trap
- Tracking control practices
  - Stabilized construction entrance/exit
  - Street sweeping and vacuuming

- Wind control practices
  - Wind erosion control

c) <b>Substantial changes in topography from excavation, grading, or fill, including but not necessarily limited to : 1) ground surface relief features; 2) geologic substructures or unstable soil conditions; and 3) unique geologic or physical features?</b> <b>(source #(s): 8)</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

Although, the proposed project would generally follow the existing topography of the existing site, it would include grading and the deposition of fill material along the proposed pathway alignment. However, these changes are not anticipated to result in substantial changes in topography. Additionally, the use of the BMPs described above in Section b would reduce the impacts of soil erosion from any changes in topography. Therefore, this project would have a less than significant impact on topography.

4. WATER. *Would the proposal result in:*

a) <b>Substantial changes in absorption rates, drainage patterns, or the rate and amount of surface runoff? (source #(s): 7, 8)</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The proposed project would not substantially alter the drainage pattern of the Study Area. The proposed project would slightly increase the impervious surface area of the site due to the creation of a new overcrossing and elevated path. However, it would not substantially increase the rate or amount of surface runoff that would result in flooding. Therefore, the proposed project would have a less than significant impact on absorption rates, drainage patterns, and the rate and amount of surface runoff.

b) <b>Exposure of people or property to water related hazards, including, but not necessarily limited to: 1) flooding; 2) debris deposition; or 3) similar hazards? (source #(s): 8)</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

No people or structures would be exposed to a significant risk of loss, injury, or death involving flooding as a result of implementation of the proposed project. Therefore, the proposed project would have a less than significant impact on exposure of people or property to water related hazards.

c) <b>Discharge of pollutants into surface or ground waters or other alteration of surface or ground water quality (e.g., temperature, dissolved oxygen or turbidity)? (source #(s): 7, 8)</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

The primary factors contributing to water quality issues in the region are non-point source pollution and the cumulative impacts of multiple point sources such as drainage from urban areas. Although Corte Madera Creek is listed as impaired due to the presence of diazinon, the proposed project would not contribute to this impairment. Groundwater is anticipated to be encountered during construction, and accidental spills or release of pollutants could potentially impact groundwater quality.

Construction-related activities that may cause temporary impacts to stormwater quality include: excavation and grading activities, stockpiling soils, loading and unloading transported excavated and fill materials, dewatering activities, vegetation removal, temporary construction fill, and alterations to the existing stormwater drainage near Corte Madera Creek. During construction, there is potential for temporary impacts to surface water quality due to increased erosion. Sediment could be transported to Corte Madera Creek and storm drains from stormwater runoff.

Implementation of the proposed project would not violate water quality standards or result in a significant adverse effect on the quality of stormwater entering Corte Madera Creek. The proposed project is expected to disturb an area exceeding one acre in size. The proposed project would be subject to Nation Pollution Discharge Elimination System (NPDES) permit requirements. NPDES permit conformance requires that the proposed project applicant (or contractor) file a Notice of Intent and submit a stormwater pollution prevention plan (SWPPP) to the RWQCB. Development and implementation of a SWPPP would reduce the water quality impacts of this proposed project to less than significant levels.

Stormwater BMPs would be implemented during construction of the proposed project to minimize erosion and sedimentation. Conformance to the NPDES permit requirements would reduce any impacts associated with discharge or run-off to a less than significant level. Therefore, the water quality impacts would be less than significant with the implementation of BMPs as part of the proposed project.

## Proposed Design Pollution Prevention BMPs

Preliminary treatment BMPs for the proposed project have been selected based on Marin County Stormwater Pollution Prevention Program (MCSTOPPP) guidelines, site conditions, and feasibility. The following are proposed as potential BMPs for pollutant removal:

- Infiltration devices
- Biofiltration strips
- Wet basins
- Biofiltration swales
- Austin sand filters
- Detention devices
- Delaware filters
- Multi-chambered treatment trains

The implementation of BMPs for pollutant removal would be dependent upon final design and may include any of these BMPs.

d) <b>Substantial change in the amount of surface water in any Waterbody or ground water either through direct additions or withdrawals, or through intersection of an aquifer by cuts or excavations? (source #(s): 7, 8)</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

The proposed project is located within the Ross Valley Groundwater Basin in the San Francisco Bay Hydrologic Region. Groundwater is anticipated to be encountered during construction, and some withdrawals may be required due to dewatering. However, this would be minor, and additions to groundwater are not anticipated. Thus, there would be no augmentation of groundwater and changes in surface infiltration characteristics that would affect groundwater recharge. Additionally, the proposed project would not increase demand for water. Therefore, the proposed project would have a less than significant impact on groundwater resources in the Study Area.

e)	<b>Substantial changes in the flow of subsurface or ground waters, including, but not limited to: 1) currents; 2) rate of flow; or 3) the course of direction of water movements?</b> (source #(s): 7, 8)	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
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[ ]                      [ ]                      [X]                      [ ]

The proposed project would not substantially alter the drainage patterns of subsurface or ground waters in the Study Area. The proposed project would slightly increase the impervious surface area of the site due to the creation of a new overcrossing and elevated path. However, no substantial changes to the amount of ground waters are anticipated. Therefore, the proposed project would have a less than significant impact on the flow of subsurface or ground waters.

f)	<b>Substantial reduction in the amount of water otherwise available for public water supplies?</b> (source #(s): 7, 8)	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
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[ ]                      [ ]                      [X]                      [ ]

Groundwater accounts for only 5% of the estimated water supply for agriculture and urban uses in the San Francisco Bay Hydrologic Region. The proposed project would not result in an increase in population or a demand for water, with the exception of water required for landscaping. Therefore, the proposed project would have a less than significant impact on the amount of water available for the public.

5. AIR QUALITY/GREENHOUSE GAS EMISSIONS. *Would the proposal:*

a) <b>Generate substantial air emissions that could violate official air quality standards or contribute substantially to an existing or projected air quality violation?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[X]	[ ]	[ ]

The entire San Francisco Bay Area is currently designated “non-attainment” for the state particulate matter (PM) PM<sub>10</sub> and PM<sub>2.5</sub> standards, the state one-hour, and the national eight-hour ozone standards. As part of the effort to reach attainment of these standards, the Bay Area Air Quality Management District (BAAQMD) has established thresholds of significance for several criteria air pollutants associated with operation of projects. Specifically, a project is considered to have a potential to violate air quality standards, if the project would result in an increase in emissions of 80 pounds per day or 15 tons per year of PM<sub>10</sub>, reactive organic gases (ROG), or nitrogen oxides (NO<sub>x</sub>). ROG and NO<sub>x</sub> are both ozone precursors.

Development of the project would require preparation of the site and construction of the proposed project. Construction activities typically result in emissions of PM, usually in the form of fugitive dust from activities such as demolition, excavation, grading, and vehicle travel on unpaved surfaces. In the absence of mitigation, construction activities may result in significant quantities of dust on a temporary and intermittent basis during the construction period. BAAQMD’s approach to analyses of construction impacts as noted in the BAAQMD CEQA Guidelines is to emphasize implementation of effective and comprehensive control measures rather than detailed quantification of emissions. With implementation of the Mitigation Measure 1, as imposed through this Initial Study, the project’s construction-related dust impacts would be less than significant.

## Mitigation Measure 1: Dust Control

During all phases of construction, the following dust control procedures shall be implemented:

- Water all active construction areas as needed.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).
- Sweep paved access roads, parking areas and staging areas at construction sites daily (with water sweepers).
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent paved streets.

**Monitoring Measure 1:** The lead agency shall verify that Mitigation Measure 1 has been implemented.

b) <b>Expose sensitive receptors to pollutants, such as noxious fumes or fugitive dust?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

Construction of the proposed project may expose nearby properties to noxious fumes and/or fugitive dust. However, these emissions are anticipated to be temporary and minor. Operation of the multi-use pathway would require routine maintenance vehicle trips to and from the project. However, any emissions related to maintenance would be minor. Implementation of Mitigation Measure 1, as described in Section V.5(a), would further reduce the impacts of fugitive dust to sensitive receptors below a significant level.

c) <b>Alter air movement, moisture, or temperature, or cause any change in climate?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

It is estimated that the sea level elevation in the San Francisco Bay may rise by 16 inches by mid-century and 55 inches by the end of the century. A portion of the proposed project may be affected by the mid-century and century rise. However, the extent of the inundation does not reflect any existing shoreline protection or wave activity. The proposed project would not result in significant impact to the environment since no alterations to air movement, moisture, or temperature are anticipated. The proposed project is intended to enhance the non-motorized travel throughout the area and would ultimately help reduce emissions from automobiles, which contribute to climate change.

d) <b>Create objectionable odors?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

During construction of the project, the various diesel powered vehicles and equipment in use on the site could create minor odors. The construction footprint is relatively small (6.89 acres [2.79 hectares]), and the number of construction vehicles would be relatively few. Odors generated by the diesel equipment are not likely to be noticeable beyond the immediate area and would be temporary and short-lived. Furthermore, the project would not include development of any uses that are associated with objectionable odors. Therefore, the objectionable odors caused by the project would be less than significant.

GREENHOUSE GAS EMISSIONS

e) <b>Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment??</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

As discussed in Section 6 (to follow), transportation and operation of the proposed multi-use pathway is not expected to generate additional operational vehicle trips. The proposed multi-use path is expected to have a beneficial impact on local traffic. It would improve pedestrian and bicycle access to the Larkspur Landing Ferry Terminal and the future SMART Larkspur Station, thereby reducing traffic trips. Construction of the proposed project would contribute a relatively small amount of greenhouse gas emissions through the use of fuel-consuming vehicle and equipment. The project does not include any other features that would generate substantial emissions of greenhouse gases.

Global climate change is considered a cumulative impact, resulting from a variety of natural processes and human activities throughout the world. Once operational, this project is expected to reduce greenhouse gas emissions. Therefore, the relatively minor greenhouse gas emissions associated with construction of the project would not be considered substantial. Greenhouse gas emissions impacts associate with this project would be less than significant.

f) <b>Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

The state target for greenhouse gas emissions reductions contained in AB 32 is to reduce emissions levels to 1990 levels by 2020. In addition, the Marin County Greenhouse Gas Emissions Reduction Plan established an even more aggressive target of reducing greenhouse gas emissions countywide by 15% below 1990 levels by 2015. To implement this, it is the overall County Policy of the 2007 Countywide Update Plan to apply GHG Reduction Plan Policies as applicable to all land use planning projects in Marin. Marin County has also adopted Development Code standards and BMPs to help meet these goals, including Green Building measures and Energy policies designed to reduce greenhouse gas emissions.

Since this project is expected to reduce overall greenhouse gas emissions, it would be considered in conformance with the County Greenhouse Gas Emissions Reduction Plan and with the state greenhouse gas emissions reduction goals. Green Building Program construction requirements will also be incorporated into the construction of the pathway, ensuring that the project would be in conformance with local greenhouse gas emissions reductions policies. Therefore, based on all of the above, the project's contribution to greenhouse gas emissions would be considered less than significant.

6. TRANSPORTATION/CIRCULATION. *Would the proposal result in:*

a) <b>Substantial increase in vehicle trips or traffic congestion such that existing levels of service on affected roadways would deteriorate below acceptable County standards?</b> <b>(source #(s): 5)</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

The U.S. Highway 101 Northbound Ramp/East Sir Francis Drake Boulevard intersection is currently operating at Level of Service F during peak hours. The project’s construction-related traffic would be temporary and would use existing roads to access the project area. At the peak of construction, it is estimated that construction-related traffic would be relatively small in comparison to the typical traffic conditions.

Operation of the proposed multi-use pathway would not cause a significant increase in traffic to and from the project site, because there would be no new residents or employees associated with its operation. New vehicular trips in the form of routine maintenance vehicles traveling to and from the site would be associated with the project operation. However, the number of vehicle trips is anticipated to be minor. Following completion of the multi-use path, the proposed project is expected to have a beneficial impact on local traffic by improving pedestrian and bicycle access to the Larkspur Landing Ferry Terminal and the future SMART Larkspur Station, all of which will further promote non-motorized transportation. Therefore, the proposed project would have a less than significant impact on roadway level of service.

b) <b>Traffic hazards related to: 1) safety from design features (e.g., sharp curves or dangerous intersections); 2) barriers to pedestrians or bicyclists; or 3) incompatible uses (e.g., farm equipment)?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

The proposed project would include a multi-use pathway that would be constructed above East Sir Francis Drake Boulevard and would improve safety and traffic operations by limiting the number of pedestrians crossing East Sir Francis Drake Boulevard at Larkspur Landing Circle. The proposed project would not increase traffic hazards due to design features, barriers to pedestrians or bicyclists, or incompatible uses. This is due to the proposed multi-use pathway’s construction and operation not including modification to existing roadways or the construction of new roadways. Therefore, the project impacts related to safety from design features, barriers to pedestrians and bicyclists, or incompatible uses would be less than significant.

c) <b>Inadequate emergency access or access to nearby uses?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[ ]	[X]

The proposed project would not result in inadequate emergency access to the Study Area. Primary and emergency access to the project site and the proposed pathway upon its completion would be via local roads (i.e., East Sir Francis Drake Boulevard, Larkspur Landing Circle, and Victoria Way) and would be consistent with existing conditions. Construction of the multi-use pathway would not result in impacts to emergency access.

d) <b>Insufficient parking capacity on-site or off-site?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

The proposed project would not increase demand for parking. No new permanent parking or parking improvements would be constructed as part of the project. It is anticipated that up to five Marin County Airporter parking spaces would be removed as a result of the project, which constitutes an estimated 3.2% reduction in total parking volume at the Marin County Airporter. However, the reduction in the number of parking spaces relative to the total number of parking spaces available to the Marin Airporter would not result in insufficient parking capacity. Temporary impacts to parking would include the reduction of the overflow parking used by riders on the Marin County Airporter and the Larkspur Ferry. During construction, staging activities would occur to minimize any temporary parking impacts. The proposed project would impact the existing driveway entrance to the Marin Airporter overflow parking during construction. However, this impact will be temporary, and full access will be restored upon completion of the project. Additionally, parking located adjacent to the proposed alignment may be temporarily inaccessible during construction, impacting parking availability at Hospice by the Bay and the Marin County Airporter, but the impacts are anticipated to be minor. Therefore, the impacts related to parking would be less than significant.

e) <b>Substantial impacts upon existing transportation systems, including rail, waterborne or air traffic systems?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

The proposed project would increase the non-motorized access to the Larkspur Ferry Terminal and future SMART Larkspur Station. Beneficial impacts to these transportation systems are anticipated.

7. **BIOLOGICAL RESOURCES.** *Would the proposal result in:*

a) <b>Reduction in the number of endangered, threatened, or rare species, or alteration of their habitats including, but not necessarily limited to: 1) plants; 2) fish; 3) insects; 4) animals; and 5) birds listed as special status species by State or Federal Resource Agencies?</b> <b>(source #(s): 9, 10)</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[X]	[ ]	[ ]

**Sensitive Species and Habitat**

The sensitive species and habitats with potential to occur in the Study Area are described below, and the information presented in this document is summarized from the Natural Resources Study report that was prepared as part of this project (see Appendix A: 10).

**Tidewater Goby**

The tidewater goby has been listed as an endangered species under the Federal Endangered Species Act (FESA), and critical habitat has been designated. However, none is designated within the Study Area. Tidewater gobies are endemic to California and are found primarily in waters of coastal lagoons, estuaries, and marshes where the water is relatively still but not stagnant. They prefer a sandy substrate for breeding, but they can be found on rocky, mud, and silt substrates as well. Vegetation within their preferred habitat is generally sparse and consists of submerged and emergent aquatic plants.

The southern portion of the Study Area, which includes open water habitat of Corte Madera Creek and tidal channels, contains potentially suitable habitat for the tidewater goby. The Study Area contains a muddy and silty substrate as well as submerged and emergent plants. Although this species has been known to historically occur within Corte Madera Creek (i.e., upstream of the Study Area), it is unlikely that the species would be present, because it is considered to be extirpated from the area.

**Central California Coast Steelhead**

The Central California Coast steelhead has been listed as a threatened species under the FESA, and critical habitat has been designated, which includes the portion of Corte Madera Creek within the Study Area. Central California Coast steelhead use two different freshwater habitat types: 1) the primary habitat consists of shaded pools of small, cool, low-flow upstream reaches, and 2) warm water habitats

below some dams or pipeline outfalls, where summer releases provide high summer flows and fast-water feeding habitat.

The southern portion of the Study Area, which includes open water habitat of Corte Madera Creek and tidal channels, contains potentially suitable habitat for the Central California Coast steelhead. As reported by the Friends of Corte Madera Creek, the Corte Madera Creek Watershed is one of the few drainages in San Francisco Bay that still supports a viable Central California Coast steelhead population. Stream surveys conducted by the CDFG from 1960–1980, 1992, and 1999 indicated that steelhead were present in Corte Madera Creek. No formal surveys for Central California Coast steelhead were conducted as part of this proposed project. The Study Area is not considered to be spawning and rearing habitat, but may be used as a migration corridor.

#### Central California Coast Coho Salmon

The Central California Coast coho salmon has been listed as endangered under the FESA and California Endangered Species Act (CESA). Critical habitat and essential fish habitat have been designated, which includes the portion of Corte Madera Creek within the Study Area. Central California Coast coho salmon are dependent on high-quality spawning, rearing, and migration habitat, which include freshwater, estuaries, and ocean habitats. Suitable habitat includes streams with cool summer water temperatures, distinct surface water connections to the estuarine and marine environments, as well as stream flows during the months of February through May.

The southern portion of the Study Area, which includes open water habitat of Corte Madera Creek and tidal channels, contains potentially suitable habitat for the Central California Coast coho salmon. Corte Madera Creek has historically supported runs of Central California Coast coho salmon, which were observed in the watershed until the early 1980s. However, they are considered to be extirpated from the watershed. No formal surveys for Central California Coast steelhead were conducted as part of this proposed project. The Study Area is not considered to be appropriate habitat for spawning and rearing, but may be used as a migration corridor.

#### California Clapper Rail

The California clapper rail has been listed as endangered under the FESA and the CESA. The CDFG also lists this species as “Fully Protected,” and critical habitat has not been designated. Clapper rails prefer marsh vegetation in and along creeks and mudflat edges, which is used for nesting and foraging. Vegetation within this habitat includes cordgrass, pickleweed, gum-plant, and salt grass. Breeding begins by February and nesting starts in mid-March, extending into August.

The southern portion of the Study Area containing the tidal marsh wetland provides potentially suitable habitat for the California clapper rail. USFWS protocol-level surveys were conducted in February and March of 2009 to determine their presence or absence in the Study Area. No rails were detected during these surveys, and it was determined that the Study Area does not contain suitable breeding habitat, but

may serve as a dispersal corridor. Refer to the Natural Resource Study appendix for the California clapper rail survey report in Appendix A.

### California Black Rail

The California black rail has been listed as threatened under the CESA. Their preferred habitat is similar to the California clapper rail within the region, which includes salt marshes of the northern San Francisco Bay region. Breeding begins by February and extends into June. The southern portion of the Study Area containing the tidal marsh wetland provides marginally suitable habitat for the California black rail. Surveys have not been conducted for this species within the Study Area. However, no California black rails were observed during the California clapper rail surveys conducted in February and March of 2009.

### Salt Marsh Harvest Mouse

The salt marsh harvest mouse has been listed as endangered under the FESA and CESA. The CDFG also lists this species as “Fully Protected,” and critical habitat has not been designated. Salt marsh harvest mouse’s preferred habitat is salt marsh habitat that contains a predominance of pickleweed. This species is dependent on dense cover and uses upland areas consisting of salt marsh vegetation to escape the high tides. Salt marsh harvest mouse breeds from May to November. The southern portion of the Study Area containing the tidal marsh wetland provides potentially suitable habitat for the salt marsh harvest mouse.

### Migratory Birds

The proposed project is located adjacent to the San Francisco Bay, which is part of the Pacific Flyway bi-annual waterfowl migration route. The marshes and mudflats of the San Francisco Bay in Corte Madera provide feeding and roosting habitat for some migratory birds. The proposed project would involve the removal of up to 47 trees. Several special-status birds and birds protected under the Migratory Bird Treaty Act (MBTA) may forage and/or nest in non-native grassland, salt marsh, or other vegetation communities within or adjacent to the Study Area. The following species have potential to occur in the project area and are included in the MBTA list of migratory birds: great egret (*Ardea alba*), great blue heron (*Ardea herodias*), Northern harrier (*Circus cyaneus*), snowy egret (*Egretta thula*), white-tailed kite (*Elanus leucurus*), saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*), California black rail (*Laterallus jamaicensis coturniculus*), Alameda song sparrow (*Melospiza melodia pusillula*), San Pablo song sparrow (*Melospiza melodia samuelis*), black-crowned night heron (*Nycticorax nycticorax*), double-crested cormorant (*Phalacrocorax auritus*), and California clapper rail.

### Wetlands

A wetland delineation report was prepared for this project and was approved by the USACOE on July 1, 2009. The USACOE confirmed the presence and extent of waters of the U.S. within the Study Area,

which included wetlands (i.e., tidal salt marsh) and “other waters”. The Study Area contains 0.61 acre (0.25 hectare) of wetlands, 0.06 acre (0.02 hectare) of tidal channels, and 1.03 acre (0.42 hectare) of open water (i.e., Corte Madera Creek).

A Natural Resources Study was prepared for the proposed project. This study included field reconnaissance surveys and a review of data on special-status species that may occur within the San Rafael and seven surrounding USGS 7.5-minute quadrangles. This data was obtained online from the USFWS website. In addition to the USFWS database, the California Natural Diversity Database, CDFG, and CNPS electronic inventories were queried for the same quadrangles.

The proposed project may affect the following special-status species California clapper rail, California black rail, salt marsh harvest mouse, tidewater goby, Central California Coast steelhead, and Central California Coast coho salmon and/or their habitat. Direct effects include the installation of permanent structures associated with the multi-use pathway in the salt marsh and Corte Madera Creek; the presence of construction crews and equipment within the Study Area; and the associated noise disturbance, ground vibrations, and dust generated from use of heavy equipment. Indirect effects include an increase in pedestrian and bicycle traffic in the salt marsh area, which would also likely result in an increase in the amount of trash and debris that may further degrade the quality of the habitat. Also, direct shading from construction of the multi-use pathway would inhibit pickleweed growth, which would reduce salt marsh habitat. These impacts would be considered significant; however, the implementation of the mitigation measures, as imposed through this Initial Study, described below would reduce the effect on these species and their habitats to a less than significant level. The following mitigation measures related to biological resources would be implemented as part of the proposed project construction.

### **Mitigation Measure 2: Wetland Habitat Restoration**

The lead agency shall coordinate with USACOE, USFWS, and CDFG to establish mitigation measures to offset impacts to the tidal salt marsh in accordance with Section 404 of the Clean Water Act, FESA, and CESA. Impacts to the tidal salt marsh shall be mitigated through the restoration or creation of wetland habitat. The portion of tidal salt marsh subject to mitigation through the creation or restoration of wetland habitat would include only the area of permanent impact associated with the multi-use pathway (i.e., columns, footings, and piers placed within the tidal salt marsh) (0.03 acre [0.01 hectare]). For this area, habitat shall be created, restored, or set aside in perpetuity suitable in a 2:1 ratio for on-site and 3:1 ratio for off-site mitigation. This is in compliance with the County of Marin Communitywide Plan wetland restoration policy (BIO 3.2). Alternately, mitigation credits may be purchased through an approved mitigation bank, if available. If no mitigation bank is available, mitigation may be accomplished through support of existing or planned conservation projects. Because California clapper rail, California black rail, and salt marsh harvest mouse all share this type of habitat, the proposed mitigation would also offset impacts to these species. This mitigation measure shall be implemented through coordination with regulatory agencies and is subject to review and approval. The area

associated with the temporary construction access (0.38 acre [0.15 hectare]) would not be included in the mitigation associated with the permanent impacts as described above. However, mitigation for temporary impacts to this area shall be accomplished through replanting/reseeding as described in Mitigation Measure 6 (Marin CWP Policies: BIO 1.1, 2.1, 2.2, 3.1, 4.1, 4.5, 4.7, 4.8, 4.11).

**Monitoring Measure 2:** The lead agency shall verify that Mitigation Measure 2 has been implemented.

### **Mitigation Measure 3: Establish Boundary for Work Area within Sensitive Habitat**

Barrier fencing shall be established within the salt marsh habitat to delineate the boundary between where construction activities are allowed and prohibited. The fencing would prevent construction encroachment into the surrounding prohibited areas of the salt marsh and creek habitats. The construction specifications shall contain clear language that restricts construction-related activities, as well as prohibits vehicle operation, material and equipment storage, and other surface-disturbing activities within the prohibited areas. In addition, hydrologic features (i.e., topographic depressions, roadside ditches, culverts, etc.) outside the Study Area shall not be manipulated (i.e., re-routed, dredged, filled, graded, etc.). This would reduce potential impacts to wetlands outside of the Study Area that may be hydrologically connected to wetlands within the Study Area (Marin CWP Policies: BIO 1.1, 2.2, 4.4, 4.7; TRL 2.1; TR 4.1).

**Monitoring Measure 3:** The lead agency shall verify that Mitigation Measure 3 has been implemented.

### **Mitigation Measure 4: Implement Erosion Control Measures and Storm Water Pollution Prevention Plans**

A Stormwater Pollution Prevention Plan (SWPPP) and erosion control BMPs shall be developed to minimize wind or water-related erosion. A SWPPP shall be developed for the project as is required by the RWQCB for all projects that have at least one acre of soil disturbance. The project shall be constructed in a manner that avoids erosion on the project and prevents accumulation of silt in drainage ways. This may be done through the use of erosion dams, temporary ground covers, and detention or settling structures. This mitigation plan shall be implemented through development of an erosion control plan subject to review and approval.

The following protective measures shall be included in the SWPPP:

- No discharge of pollutants from vehicle and equipment cleaning shall be allowed into the storm drain or water courses.
- Vehicle and equipment fueling and maintenance operations must be at least 100 feet (30 meters) away from water courses, unless separated by a topographic or drainage barrier.

- Concrete waste shall not be allowed into water courses and shall be collected in washouts. Water from curing operations will be properly disposed of off-site.
- Dust control measures shall be implemented, including using water trucks and the application of tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when required.
- Coir rolls shall be installed along or at the base of slopes during construction to capture sediment.
- Protection of graded areas from erosion shall occur using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas.
- Use of bio-filtration strips and swales to receive stormwater discharges from the adjacent roadway, or other impervious surfaces shall be incorporated (Marin CWP Policies: BIO 1.1, 2.2, 4.4, 4.7).

**Monitoring Measure 4:** The lead agency shall verify that Mitigation Measure 4 has been implemented.

**Mitigation Measure 5: Replant/Re-Seed to Stabilize Disturbed Area**

The applicant shall plant or re-seed all slopes affected by the proposed project with native grasses and shrubs to stabilize the slopes against erosion as part of the construction activities. This shall occur after ground disturbing construction activities associated with the multi-use pathway are completed. The applicant shall install native plant species appropriate for the location of the disturbed area (Marin CWP Policies: BIO 1.1, 2.2).

**Monitoring Measure 5:** The lead agency shall verify that Mitigation Measure 5 has been implemented.

**Mitigation Measure 6: Replant/Re-Seed Salt Marsh Habitat**

The applicant shall plant or re-seed the salt marsh habitat along the north bank of Corte Madera Creek affected by the proposed project to revegetate the disturbed habitat as part of the construction activities. This may include hydro seeding and would occur after ground disturbing construction activities associated with the multi-use pathway are completed. The applicant shall install native salt marsh plant species. Examples include saltgrass (*Distichilis spicata*), dwarf spikerush (*Eleocharis parvula*), alkali heath (*Frankenia grandifolia*), marsh gumplant (*Grindelia stricta*), and pickleweed (*Sarcocornia pacifica*) as appropriate for the location of the disturbed area and per an agency-approved Mitigation and Monitoring Plan (Marin CWP Policies: BIO 1.1, 1.5, 2.1, 2.2, 3.1, 4.1, 4.5, 4.7).

**Monitoring Measure 6:** The lead agency shall verify that Mitigation Measure 6 has been implemented.

### **Mitigation Measure 7: Provide Environmental Awareness Training**

Before the onset of construction activities, a qualified biologist shall conduct an education program for all construction personnel. At a minimum the training would include:

- A description of California clapper rail, salt marsh harvest mouse, tidewater goby, Central California Coast steelhead, and Central California Coast coho salmon and their habitats.
- The occurrence of these species within the Study Area, an explanation of the status of these species, and protection under the FESA and CESA.
- The measures that are being implemented to conserve the species and their habitats as they relate to the work site, and the work site boundaries within which construction may occur.
- A fact sheet conveying this information shall be distributed to the construction personnel and other project personnel who may enter the site.
- Upon completion of the program, personnel shall sign a form stating that they attended the program and understand all the mitigation measures and implications of the FESA and CESA (Marin CWP Policies: BIO 1.1, 1.5, 2.2, 4.12).

**Monitoring Measure 7:** The lead agency shall verify that Mitigation Measure 7 has been implemented.

### **Mitigation Measure 8: Restrictions on Construction Activities**

The following restrictions on construction activities shall be imposed:

- A speed limit of 15 miles per hour in unpaved areas of the Study Area shall be enforced to reduce dust and excessive soil disturbance.
- Construction staging, storage, and parking areas shall be located within the SMART right-of-way and outside of any prohibited work areas (or if owner concurs on adjacent private property such as the Attwood Property). Access routes and the number and size of staging and work areas shall be limited to the minimum necessary to construct the proposed project. Routes and boundaries of roadwork shall be clearly marked prior to initiating construction or grading.
- All food and food-related trash items shall be enclosed in sealed trash containers and removed completely from the site at the end of each day.
- No pets from construction and project personnel shall be allowed anywhere in the proposed project work area during construction.

- No firearms shall be allowed on the project site except for those carried by authorized security personnel or local, State, or Federal law enforcement officials.
- All equipment shall be maintained in order to prevent leaks of automotive fluids such as gasoline, oils, or solvents. A Spill Response Plan would be prepared. Hazardous materials such as fuels, oils, solvents, etc. shall be stored in sealable containers and designated locations at least 100 feet (30 meters) from wetlands and aquatic habitats.
- Servicing of vehicles and construction equipment including fueling, cleaning, and maintenance shall occur at least 100 feet (30 meters) from any aquatic habitat unless they are separated by topographic or drainage barrier or unless they are located at an already existing gas station. Staging areas may occur closer to the project activities as required.
- Construction in inundated drainage shall be conducted with coffer dams to isolate dewatered areas from active channel habitats.
- Use of herbicides shall be restricted in the prohibited areas (i.e., tidal salt marsh habitat) (Marin CWP Policies: BIO 1.1, 1.8, 2.2, 4.7, 4.15; TRL 2.1; TR 4.1).

**Monitoring Measure 8:** The lead agency shall verify that Mitigation Measure 8 has been implemented.

**Mitigation Measure 9: USFWS-Approved Biologist**

The lead agency shall consult with the USFWS to designate an approved biologist that would be on-call during all construction activities that occur within the Study Area. Qualifications of the biologist(s) must be presented to the USFWS for review and written approval prior to groundbreaking at the project site. The biologist shall perform preconstruction surveys. The biologist's findings shall be presented to the lead agency for any necessary consultation and compliance with USFWS (or other agencies) requirements. The lead agency shall consult with Federal and/or State agencies as necessary (Marin CWP Policies: BIO 1.1, 2.2).

**Monitoring Measure 9:** The lead agency shall verify that Mitigation Measure 9 has been implemented.

**Mitigation Measure 10: Post-construction Compliance Form**

A post-construction compliance report shall be prepared by the on-call biologist, which shall be provided to the USFWS within forty (40) working days following project completion or within sixty (60) calendar days of any break in construction activity lasting more than forty (40) working days. Any compliance forms prepared by the biologist shall be provided to the lead agency for consultation with the USFWS as necessary for compliance with Federal requirements (Marin CWP Policy: BIO 2.2).

**Monitoring Measure 10:** The lead agency shall verify that Mitigation Measure 10 has been implemented.

**Mitigation Measure 11: Special-status Species Construction Avoidance Timeline**

California Clapper Rail

Construction activities within permitted work areas shall occur between September 1 and January 31 to reduce potential impacts to California clapper rail breeding/nesting season. If construction must occur during the period from February 1 to August 31, a qualified wildlife biologist shall conduct preconstruction surveys for nesting birds. If an active nest is found, the bird shall be identified to species, and the approximate distance from the closest work site to the nest estimated. No additional measures need be implemented if active nests are more than 300 feet from the nearest work site. If active nests are closer than 300 feet to the nearest work site and there is the potential for destruction of a nest or substantial disturbance to nesting birds due to construction activities, a plan to monitor nesting birds during construction shall be prepared and submitted to the USFWS and CDFG for review and approval. Disturbance of active nests shall be avoided until it is determined that nesting is complete and the young have fledged.

California Black Rail

Construction activities within permitted work areas shall occur between July 1 and January 31 to reduce potential impacts to California clapper rail breeding/nesting season. If construction must occur during the period from February 1 to June 30, a qualified wildlife biologist shall conduct preconstruction surveys for nesting birds. If an active nest is found, the bird shall be identified to species, and the approximate distance from the closest work site to the nest estimated. No additional measures need be implemented if active nests are more than the 300 feet from the nearest work site. If active nests are closer than 300 feet to the nearest work site and there is the potential for destruction of a nest or substantial disturbance to nesting birds due to construction activities, a plan to monitor nesting birds during construction shall be prepared and submitted to the USFWS and CDFG for review and approval. Disturbance of active nests shall be avoided until it is determined that nesting is complete and the young have fledged.

Salt Marsh Harvest Mouse

Construction activities within permitted work areas shall occur between December 1 and February 28 to reduce potential impacts to salt marsh harvest mouse breeding/nesting season. If construction must occur during the period from March 1 to November 30, a qualified wildlife biologist shall conduct preconstruction surveys for salt marsh harvest mouse.

If a monitoring plan is required, it will be submitted to the lead agency for consultation with the USFWS and/or CDFG, as necessary (Marin CWP Policies: BIO 1.1, 2.2, 2.5).

**Monitoring Measure 11:** The lead agency shall verify that Mitigation Measure 11 has been implemented.

**Mitigation Measure 12: Halt Work if Special-status Species are observed in Work Area**

The resident engineer shall halt work and immediately contact the lead agency, who would then contact an approved on-call biologist, USFWS, and CDFG in the event that a California clapper rail, California black rail, or salt marsh harvest mouse enter the construction zone. The resident engineer shall suspend all construction activities in the immediate construction zone until the animal leaves the site voluntarily, or is removed by the biologist to a release site using USFWS-approved transportation techniques (Marin CWP Policies: BIO 1.1, 2.2).

**Monitoring Measure 12:** The lead agency shall verify that Mitigation Measure 12 has been implemented.

**Mitigation Measure 13: Care for Injured Special-status Species**

Injured special-status species shall be cared for by a licensed veterinarian or other qualified person, such as the on-site biologist. Dead individuals shall be preserved according to standard museum techniques and held in a secure location. The USFWS and the CDFG shall be notified within one working day of the discovery of death or injury to special-status species (Marin CWP Policies: BIO 1.1, 2.2).

**Monitoring Measure 13:** The lead agency shall verify that Mitigation Measure 13 has been implemented.

**Mitigation Measure 14: Install an Exclusion Fence for Salt Marsh Harvest Mouse**

A temporary exclusionary fence shall be installed to prevent salt marsh harvest mice from entering the permitted work area within the salt marsh. The fence shall be maintained and kept in proper working condition for the duration of the construction activities that occur within the salt marsh (Marin CWP Policies: BIO 1.1, 2.2).

**Monitoring Measure 14:** The lead agency shall verify that Mitigation Measure 14 has been implemented.

### **Mitigation Measure 15: Work in Live Streams Shall be Minimized**

If it is necessary to conduct work in a live stream, the workspace shall be isolated to avoid construction activities in flowing water. The proposed project shall allow fish passage past the project area. Adequate water depth and channel width must be maintained at all times for fish passage. Prior to construction activities, the workspace would be isolated from flowing water to prevent sedimentation and turbidity and to avoid impacts to fish. The diversion shall remain in place during the project and be removed immediately after work is completed in a manner that would allow flow to resume with the least disturbance to the substrate (Marin CWP Policies: BIO 1.1, 2.2, 4.4).

**Monitoring Measure 15:** The lead agency shall verify that Mitigation Measure 15 has been implemented.

### **Mitigation Measure 16: Dewatering**

If dewatering within the open waters of Corte Madera Creek is required, either a pump shall remove water to an upland disposal site, or a filtering system shall be used to collect the water and return clear water to the creek. The pump intake shall be fitted with a fish exclusion device that meets the National Marine Fisheries Service (NMFS) fish screening criteria. This includes openings that are no bigger than either 3/32 inch or 1/4 inch depending on the presence of fry or fingerling salmonid juveniles (Marin CWP Policies: BIO 1.1, 2.2).

**Monitoring Measure 16:** The lead agency shall verify that Mitigation Measure 16 has been implemented.

### **Mitigation Measure 17: Presence of Biologist During Dewatering**

During dewatering activities, a fisheries biologist shall be present to salvage individuals should they be present. Fish shall be netted, placed in a bucket of water, and immediately moved to a downstream portion of the creek. Records of species, relative size, and number of individuals shall be kept. Periodic checks of the work area shall occur to ensure that fish have not re-entered the work area (Marin CWP Policies: BIO 1.1, 2.2).

**Monitoring Measure 17:** The lead agency shall verify that Mitigation Measure 17 has been implemented.

### **Mitigation Measure 18: Placement of Non-toxic Structures in Streams**

All materials placed in the stream, such as pilings and retaining walls, shall be non-toxic. Any combination of wood, plastic, cured concrete, steel pilings, or other materials used for in-channel structures shall not contain coatings, treatments, or consist of substances deleterious to aquatic

organisms that may leach into the surrounding environment in amounts harmful to aquatic organisms (Marin CWP Policies: BIO 1.1, 2.2, 4.4, 4.7).

**Monitoring Measure 18:** The lead agency shall verify that Mitigation Measure 18 has been implemented.

**Mitigation Measure 19: Minimize Disturbance from Construction Access**

Disturbance to existing grades and vegetation shall be limited to the actual site of the project and necessary access routes. Placement of all roads, staging areas, and other facilities shall avoid and limit disturbance to streambank or stream channel habitat to the minimum area necessary to complete the work. When possible, existing ingress or egress points shall be used and/or work performed from the top of the creek banks. Obvious barriers to fish passage shall be removed to facilitate upstream movement (Marin CWP Policies: BIO 1.1, 2.2, 4.7; TRL 2.1; TR 4.1).

**Monitoring Measure 19:** The lead agency shall verify that Mitigation Measure 19 has been implemented.

**Mitigation Measure 20: Erosion Control**

Erosion control and sediment detention devices (e.g., well-anchored sandbag coffer dams, straw bales, “Aqua Dam,” or silt fences) shall be incorporated into the project design and implemented at the time of construction. These devices shall be in place during construction activities. If necessary, these devices shall be in place after construction for the purposes of minimizing fine sediment and sediment/water slurry input to flowing water and for detaining sediment laden water on-site. These devices shall be placed at all locations where the likelihood of sediment input exists. A supply of erosion control materials shall be kept on hand to cover small sites that may become bare and to respond to sediment emergencies (Marin CWP Policies: BIO 1.1, 2.2).

**Monitoring Measure 20:** The lead agency shall verify that Mitigation Measure 20 has been implemented.

**Mitigation Measure 21: Comply with Local Tree Removal Ordinances**

Work shall conform to local tree ordinances for construction projects. The City of Larkspur Heritage tree ordinance stipulates that the removal of trees with a 50 inches circumference or greater, measured at 2 feet above grade, requires a permit. Replacement of removed trees shall occur at 2:1 ratio for heritage trees 15–24 inches in diameter and 4:1 ratio for trees greater than 24 inches in diameter. The specific replacement shall be determined during the permit review process (Marin CWP Policies: BIO 1.1, 1.3).

**Monitoring Measure 21:** The lead agency shall verify that Mitigation Measure 21 has been implemented.

### **Mitigation Measure 22: Minimize Dispersal of Noxious Weeds into Un-infested Areas**

Construction supervisors and managers shall be educated on weed identification and the importance of controlling and preventing the spread of noxious weeds. Areas shall be identified with populations of high priority noxious weed infestations and flag areas for easy identification by construction crews. Construction equipment shall be cleaned after leaving areas with high priority noxious weeds (Marin CWP Policies: BIO 1.1, 1.6, 4.6).

**Monitoring Measure 22:** The lead agency shall verify that Mitigation Measure 22 has been implemented.

### **Mitigation Measure 23: Construction Activities Conducted Outside of Migratory Bird Nesting Season**

Shrub and tree trimming and/or removal activities associated with the proposed project shall be conducted outside the nesting season (generally between February 1 and August 31). If shrub and tree removal is scheduled to occur during the nesting season, a qualified wildlife biologist, familiar with the species and habitats in the Study Area, shall conduct preconstruction surveys for nesting birds with suitable nesting habitat in the Study Area as described in Mitigation Measure 24 (Marin CWP Policies: BIO 1.1, 2.4, 2.5).

**Monitoring Measure 23:** The lead agency shall verify that Mitigation Measure 23 has been implemented.

### **Mitigation Measure 24: Conduct Pre-construction Surveys for Nesting Birds**

The nesting bird surveys shall be conducted within one week before initiation of construction activities within those habitats. If no active nests are detected during surveys, construction may proceed. If active nests are detected then Mitigation Measure 25 shall be implemented (Marin CWP Policies: BIO 1.1, 2.4, 2.5).

**Monitoring Measure 24:** The lead agency shall verify that Mitigation Measure 24 has been implemented.

### **Mitigation Measure 25: Install Exclusionary Fencing for Migratory Birds**

A no-disturbance buffer shall be established around nests identified during preconstruction surveys. The extent of the no-disturbance buffers shall be determined by a wildlife biologist in consultation with CDFG and shall depend on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographic or artificial barriers. The purpose of the buffer is to avoid disturbance or destruction of the nest until after the breeding season, or until a wildlife biologist determines that the young have fledged (usually late-June to

mid-July). Within this buffer, all non-essential construction activities (e.g., equipment storage, meetings) shall be avoided. However, construction activities can proceed if the biological monitor determines that the individual is not likely to abandon the nest during construction (Marin CWP Policy: BIO 1.1, 2.5).

**Monitoring Measure 25:** The lead agency shall verify that Mitigation Measure 25 has been implemented.

**Mitigation Measure 26: Conduct Work Outside of Northern California Rainy Season**

Work within an inundated drainage or channel, or in-water work, shall be conducted outside the Central and Northern California rainy season of October 15 through April 15. Work within upland areas (i.e., not in-water work) that is conducted during the rainy season shall require the implementation of BMPs described in Mitigation Measure 4 (Marin CWP Policies: BIO 1.1, 4.4, 4.15).

**Monitoring Measure 26:** The lead agency shall verify that Mitigation Measure 26 has been implemented.

**Mitigation Measure 27: Restore Flows Following the Completion of Construction**

Following completion of the project, all materials used to maintain flow and divert water from the Study Area during the construction period, including, but not limited to, coffer dams, pipes, filter fabric, fill material, and gravel, shall be removed. All excess soil shall be disposed at an approved upland site (Marin CWP Policy: BIO 1.1, 4.4).

**Monitoring Measure 27:** The lead agency shall verify that Mitigation Measure 27 has been implemented.

In conclusion, the proposed project would permanently remove 0.03 acre (0.01 hectare) of tidal salt marsh. This sensitive natural community provides potentially suitable habitat for wildlife species, including special-status species such as California clapper rail, California black rail, and salt marsh harvest mouse. The implementation of the mitigation measures described above would reduce the effect on these species and their habitats to a less than significant level.

b) <b>Substantial change in the diversity, number, or habitat of any species or plants or animals currently present or likely to occur at any time throughout the year? (source #(s): 9, 10)</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[X]	[ ]	[ ]

The proposed project would result in the installation of permanent structures within the salt marsh and Corte Madera Creek. Impacts to these habitats are discussed in Sections V.1(a) and V.7(a). The mitigation measures described in Section V.7(a) would reduce the effect on the diversity, number, or habitat of any plant or animal species to a less than significant level.

c) <b>Introduction of new species of plants or animals into an area, or improvements or alterations that would result in a barrier to the migration dispersal or movement of animals? (source #(s): 9, 10)</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[X]	[ ]	[ ]

The proposed project may result in the introduction of exotic and invasive plant species as described in Section V.1(a). However, the implementation of Mitigation Measure 22 would reduce the effect to a less than significant level.

8. ENERGY AND NATURAL RESOURCES. *Would the proposal result in:*

a) <b>Substantial increase in demand for existing energy sources, or conflict with adopted policies or standards for energy use?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

The small-scale of the proposed project would not require substantial amounts of energy for either construction or maintenance purposes. Therefore, the impacts related to energy use would be less than significant. Refer to Section V.5(e) and V.5(f) for discussion of Greenhouse Gas Emissions.

b) <b>Use of non-renewable resources in a wasteful and inefficient manner?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

Building materials for the proposed project are readily available from numerous sources in the Bay Area and will not represent an unusual decrease in the availability of natural resources. Therefore, the proposed project would have a less than significant impact on non-renewable resources.

c) <b>Loss of significant mineral resource sites designated in the Countywide Plan from premature development or other land uses which are incompatible with mineral extraction?</b> (source #(s): 1)	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[ ]	[X]

According to the Marin CWP Map 3-5 (Location of Mineral Resource Preservation Sites) there are no state designated mineral resource preservation sites located within the Study Area (Appendix A:1).

9. HAZARDS. *Would the proposal involve:*

a) <b>A risk of accidental explosion or release of hazardous substances including, but not limited to: 1) oil, pesticides; 2) chemicals; or 3) radiation?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Construction of the proposed project will involve the use of construction equipment, which could create a hazard to the public from potential hazardous materials spill or release. Adherence to industry standard BMPs (such as establishing restrictions for onsite equipment maintenance using a spill prevention plan to capture any spilled materials) will result in a less than significant impact. These BMPs would be included as part of the construction activities as described in Sections V.3(b) and V.4(c). Operation of the proposed pathway will entail use of the path by bicyclists and pedestrians, as well as occasional maintenance vehicles. As such, operation of the proposed project will not involve the routine transport, use, or disposal of hazardous materials.

b) <b>Possible interference with an emergency response plan or emergency evacuation plan?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project would not interfere with the County’s emergency response or evacuation plan. The proposed multi-use pathway may be useful for emergency responders to provide non-motorized access to and from the Cal Park Hill Tunnel Parkway or the SMART Larkspur Station.

c) <b>The creation of any health hazard or potential health hazard?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

Construction of the proposed project will involve the use of construction equipment, which could create a hazard to the public from potential hazardous materials spill or release. Adherence to industry standard BMPs (such as establishing restrictions for onsite equipment maintenance using a spill prevention plan to capture any spilled materials) will result in a less than significant impact. These BMPs would be included as part of the construction activities as described in Sections V.3(b) and V.4(c). Operation of the proposed pathway will entail use of the path by bicyclists and pedestrians. As such, operation of the proposed project will not involve the routine transport, use, or disposal of hazardous materials.

d) <b>Exposure of people to existing sources of potential health hazards? (source #(s): 11, 12)</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

The project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and will not create a significant hazard to the public or the environment. As part of the Phase I ESA completed for this Initial Study, a search of Federal, State, and local agency databases pertaining to the use, generation, and release of hazardous materials was conducted. The database search identified five sites associated with hazardous materials that are located within one-quarter mile of the project site. The Phase I ESA includes the details related to the use, generation, or release at those sites and includes a map depicting the location of these sites. Three of the five sites are listed, because they hold hazardous waste manifests for the generation of one or more hazardous material. The other two sites were listed due to a release of hazardous materials. In both instances, the cases were closed by regulatory agencies, indicating that remediation had occurred and no further action was required.

The Phase I ESA identified the following contaminants of potential concern in the project vicinity:

- Pesticides, herbicides, creosote, and metals in shallow soils adjacent to railroad tracks

- Petroleum hydrocarbons and associated compounds in shallow soils associated with the use of an unpaved parking lot
- Creosote and metals in abandoned railroad ties and existing boardwalk beams and planks
- Aerially-deposited lead in shallow soils within approximately 30 feet of East Sir Francis Drake Boulevard and the northbound on- and off-ramps for U.S. Highway 101

Based on the footprint of excavation and construction activities for the proposed multi-use path, aerially-deposited lead in undisturbed soils near the intersection of East Sir Francis Drake Boulevard and U.S. Highway 101 was the only contaminants of potential concern that may affect the proposed project. Soil testing was performed to determine whether aerially-deposited lead was present in soils near the intersection of East Sir Francis Drake Boulevard and U.S. Highway 101 that would require special soil management and disposal during project excavation activities. The results of the investigation indicated that soils excavated near the intersection of East Sir Francis Drake Boulevard and U.S. Highway 101 would be considered non-hazardous waste based on soluble lead. Additionally, removal of railroad ties and/or portions of the boardwalk would be performed in accordance with applicable Federal, State, and local regulations and disposed of at a solid waste landfill certified by the RWQCB. Therefore, the proposed project would have a less than significant impact on exposure of people to existing sources of potential health hazards.

e) <b>Increased fire hazard in areas with flammable brush, grass, or trees?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[ ]	[X]

The project site is located in an urbanized area of Marin County adjacent to U.S. Highway 101. The proposed project involves the construction and operation of a multi-use pathway. As such, the project will not expose people or structures to significant losses related to wildland fires.

10. NOISE. *Would the proposal result in:*

a) <b>Substantial increases in existing ambient noise levels?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[X]	[ ]	[ ]

Construction activities would require the use of heavy equipment, such as trenchers, pile drivers, backhoes, cranes, and dump trucks. As described in the Federal Transit Administration’s Transit Noise and Vibration Impact Assessment (2006), peak construction noise levels during project construction would be associated with pile driving activities and would be up to 101 dBA at a distance of 50 feet. This peak noise level would be relatively infrequent and temporary. In addition, noise levels generated by other project-related construction activity would generally range from 75 to 80 dBA at a distance of 50 feet.

Impacts of the proposed project would be considered significant if: the project would cause a substantial permanent increase in ambient noise levels in the project vicinity; a substantial temporary or periodic increase in ambient noise levels in the project vicinity; or expose persons to the generation of excessive groundbourne vibration or groundbourne noise levels.

The proposed project would not result in a permanent noise level increase in the project vicinity, since the proposed multi-use pathway would not cause a significant increase in traffic trips. However, it would result in a temporary increase in noise levels in the project area which would be potentially significant. Implementation of Mitigation Measure 28 would ensure that noise levels associated with the proposed project would be reduced to less-than –significant levels.

**Mitigation Measure 28: Construction Noise Control Measures:**

- A construction noise reduction plan shall be adopted by the construction management team for this project that designates a noise disturbance coordinator at the construction site to implement the provisions of the plan.
- With the exception of pile driving, construction activity shall be allowed only between the hours of 7:00 a.m. and 6:00 p.m. on Monday through Friday and 9:00 a.m. to 5:00 p.m. on Saturday. Given the very loud nature of pile driving, pile driving shall be limited from the hours of 8:00 a.m. to 6:00 p.m. on Monday through Friday. Pile driving shall end by 4:30 p.m. each day.

- All powered construction equipment shall be equipped with intake and exhaust mufflers recommended by the manufacturers. Pavement breakers, pile drives, and jackhammers shall be equipped with acoustical attenuating shields or shrouds recommended by the manufacturers
- Construction equipment shall have sound-control devices no less effective than those provided on the original equipment. No equipment shall have an un-muffled exhaust.

**Monitoring Measure 28:** The lead agency shall verify that Mitigation Measure 28 has been implemented.

b) <b>Exposure of people to significant noise levels, or conflicts with adopted noise policies or standards?</b> (source #(s): 1, 2, 6)	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[X]	[ ]	[ ]

According to Figure 3-41 of the Marin Countywide Plan Noise Element (Appendix A: 1), community noise levels of up to 60 decibels (dBA) dBA, Ldn are considered “normally acceptable” for residential uses, while noise levels of 60 to 70 Ldn are considered “conditionally acceptable.” For office and commercial developments, 70 dBA, Ldn is considered “normally acceptable” and 67-77 dbA Ldn is considered “conditionally acceptable.” For industrial developments, 75 dBA, Ldn is considered “normally acceptable” and 70-80 dbA Ldn is considered “conditionally acceptable.” Additionally, the Countywide Plan also includes benchmarks for maximum allowable noise exposure from stationary noise sources, including a daytime hourly rate of 50 dBA Leq or a maximum level of 70 dBA Leq. The City of Larkspur General Plan also includes land use compatibility standards that establishes 55 decibels (dBA) dBA, Ldn as the “normally acceptable” noise level for residential uses, while noise levels of 55 to 70 Ldn are considered “conditionally acceptable.” For office and commercial developments, 70 dBA, Ldn is considered “normally acceptable” and 70-75 dbA Ldn is considered “conditionally acceptable.” For industrial developments, 70 dBA, Ldn is considered “normally acceptable” and 70-75 dbA Ldn is considered “conditionally acceptable.”

In addition to the City and County policies on community noise levels listed above, construction noise in Marin County is regulated by limiting construction activities to the less noise sensitive daytime hours. Municipal Code Section 6.70.030 states that construction activities and related noise can only occur between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday and between the hours of 9:00 a.m. and 5:00 p.m. on Saturday, although exceptions may occur for public agency or public utility projects. The City of Larkspur’s noise regulations are contained in Chapter 9.54 of the Municipal Code. For

residential areas, the noise ordinance regulations specify that an exterior noise level of 50 dBA Leq during the daytime (7:00 a.m. to 10:00 p.m.) and 40 dBA L50 during the nighttime (10:00 to 7:00 a.m.) as measured at any residential property line shall not be exceeded for more than 30 minutes. However, section 9.54.060 of the City's Municipal Code also specifies that noise associated with construction, repair, remodeling, demolition, or paving of any real property that occurs Monday through Friday (excluding legal holidays) from 7 a.m. until 6 p.m. and on Saturday, Sunday and legal holidays from 9:00 a.m. until 5:00 p.m. shall be exempted from this ordinance. Therefore, impacts of the proposed project would be considered significant if it would generate noise levels that would conflict with City, County, or State noise standards or policies.

As described above, construction activities would require the use of heavy equipment, such as trenchers, pile drivers, backhoes, cranes, and dump trucks. As described in the Federal Transit Administration's Transit Noise and Vibration Impact Assessment (2006), peak construction noise levels during project construction would be associated with pile driving activities and would be up to 101 dBA at a distance of 50 feet. This peak noise level would be relatively infrequent and temporary. In addition, noise levels generated by other project-related construction activity would generally range from 75 to 80 dBA at a distance of 50 feet.

Construction noise associated with the proposed project would not result in a permanent noise increase. However, it would result in a temporary increase in noise levels in the project area. Since construction noise levels during construction would conform to City and County noise standards and policies and Mitigation Measure 28 would be implemented, noise levels associated with the proposed project would be less than significant.

11. PUBLIC SERVICES. *Would the proposal have an effect upon, or result in a need for new or altered government service in any of the following areas*

a) <b>Fire protection?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Fire protection services for the Study Area are provided by the Corte Madera and Larkspur fire departments. The implementation of the proposed project would not hinder the use of any nearby fire stations or alter service. The new multi-use pathway may create added demand for fire emergency services. However, the impact to fire protection would be less than significant.

b) <b>Police protection?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Police protection and traffic enforcement services for the Study Area are provided by the Marin County Sheriff, California Highway Patrol, and the Twin Cities Police Authority. The Twin Cities Police Authority was formed to serve both the City of Larkspur and the Town of Corte Madera. However, neither the Twin Cities Police Authority nor the California Highway Patrol has precinct stations within the Study Area. The implementation of the proposed project would not hinder police protection within the Study Area. The new multi-use pathway may create added demand for police emergency services. However, the impact to police protection would be less than significant.

c) <b>Schools?</b> (source #(s): 17)	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

Although there are no schools within the project area, there are four school districts that provide educational services within the region (see table below). The proposed project would have a less than significant impact on schools.

District	Schools
Larkspur School District	<ul style="list-style-type: none"> <li>• Neil Cummins Elementary School</li> <li>• Hall Middle School</li> </ul>
Kentfield School District	<ul style="list-style-type: none"> <li>• Bacich Elementary School</li> <li>• Kent Middle School</li> </ul>
Tamalpais Union School District	<ul style="list-style-type: none"> <li>• Redwood High School</li> <li>• San Andreas High School</li> <li>• Sir Francis Drake High School</li> <li>• Tamalpais High School</li> <li>• Tamiscal High School</li> </ul>
San Rafael City School District	<ul style="list-style-type: none"> <li>• Bahia Vista Elementary School</li> <li>• Laurel Dell Elementary School</li> <li>• San Pedro Elementary School</li> <li>• Sun Valley Elementary School</li> <li>• Venetia Valley (Gallinas) School</li> <li>• Coleman Elementary School</li> <li>• Glenwood Elementary School</li> <li>• Davidson Middle School</li> <li>• Madrone Continuation High School</li> <li>• San Rafael High School</li> <li>• Terra Linda High School</li> </ul>

d) <b>Maintenance of public facilities, including roads?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

The operation of the multi-use pathway will require routine maintenance. However, the proposed project is relatively small in scale and would not result in a substantial increase in the maintenance of public facilities, including roads. Therefore, the proposed project would have a less than significant impact on the maintenance of public facilities.

e) <b>Other governmental services?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[ ]	[X]

The proposed project is relatively small in scale and would not result in an impact on governmental services.

12. UTILITIES AND SERVICE SYSTEMS. *Would the proposal result in a need for new systems, or substantial alterations to the following utilities:*

a) <b>Power or natural gas?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Construction of the proposed project may require the relocation of natural gas utility lines. Operation of the multi-use pathway would require power for lighting during nighttime hours for safety purposes. The amount of power required for lighting would be minimal. Therefore, the proposed project would have a less than significant impact on power or natural gas resources.

b) <b>Communication systems?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Construction of the proposed project may require the relocation of communication lines, which may result in temporary disruption of services. However, any disruptions in service would be minor. Therefore, the proposed project would have a less than significant impact on communication systems.

c) <b>Local or regional water treatment or distribution facilities?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

The proposed project may require the relocation of water lines. However, there would not be any substantial alteration to the existing system or a need for a new system. Therefore, the proposed project would have a less than significant impact on water treatment or distribution facilities systems.

d) <b>Sewer or septic tanks?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

The proposed project may require the relocation of sewer lines. However, the project does not require wastewater treatment and would not require substantial alteration to the existing system or a need for a new system. No septic tanks are anticipated to be impacted. Implementation of the proposed project will not generate new sources of wastewater. Landscaping of re-graded areas following completion of construction will include minimal amounts of irrigation. The construction of new water or wastewater facilities or expansion of existing facilities will not be required. Therefore, the proposed project would have a less than significant impact on sewer or septic tanks.

e) <b>Storm water drainage?</b> (source #(s): 7, 8)	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

The proposed project may require the relocation of storm water drainage lines. However, construction would not result in a substantial alteration to the existing system or a need for a new system. Therefore, the proposed project would have a less than significant impact on storm water drainage.

f) <b>Solid waste disposal?</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

The total quantities of materials to be excavated from the project area during construction will be relatively small and can be disposed of off-site at an appropriate landfill. The construction contractor can further refine disposal options, or determine the viability of on-site reuse, through limited sampling and chemical analysis of soils from within the areas that will be excavated during pathway construction. The proposed project will not conflict with any applicable Federal, State, or local statutes and regulations related to solid waste. Operation of the multi-use pathway will not generate substantial amounts of solid waste, which cannot be accommodated at landfills serving the project area (e.g., Marin Resource Recovery Center in San Rafael, CA). Additionally, there are no anticipated truck transport issues due to the location and proximity of roadways within the area. Therefore, the project would have a less than significant impact on solid waste disposal.

13. AESTHETICS/VISUAL RESOURCES. *Would the proposal:*

a) <b>Substantially reduce, obstruct, or degrade a scenic vista open to the public or scenic highway, or conflict with adopted aesthetic or visual policies or standards?</b> <b>(source #(s): 1, 13)</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
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[ ]                      [ ]                      [X]                      [ ]

The proposed project would not substantially reduce, obscure, or degrade a scenic vista. Views toward Mt. Tamalpais, Corte Madera Creek and the San Francisco Bay are considered scenic and valuable to the community. Overall, the visual quality of the view for motorists traveling northbound on U.S. Highway 101 would be slightly enhanced, and the views for motorists, bicyclists, and pedestrians traveling along westbound East Sir Francis Drake Boulevard would be slightly decreased. Views for pedestrian and bicyclists from the U.S. Highway 101 off-ramp may be enhanced. The addition of a multi-use pathway with bridge over East Sir Francis Drake Boulevard would not cause permanent impacts to the scenic resources valued by the City of Larkspur and Marin County.

There are no scenic highways located within the Study Area, and the proposed project meets the goals and policies of the City of Larkspur and Marin County in the following ways:

- It would provide for Marin County an attractive and functional pathway to accommodate pedestrians and bicyclists.
- It would preserve Marin County’s visual quality by protecting views of the natural environment. New viewing opportunities toward Corte Madera Creek, Mt. Tamalpais, and the San Francisco Bay would be provided from the multi-use pathway and landing overlooking the creek and marsh.
- The multi-use pathway would meet Larkspur’s General Plan by providing vistas of the ridgelines and access to the adjacent creek and marshland.

Therefore, the proposed project would have a less than significant impact on scenic vistas open to the public or conflict with adopted aesthetic or visual policies.

<p>b) <b>Have a demonstrable negative aesthetic effect by causing a substantial alteration of the exiting visual resources including, but not limited to: 1) an abrupt transition in land use; 2) disharmony with adjacent uses because of height, bulk or massing of structures; or 3) case of a substantial amount of light, glare, or shadow?</b> (source #(s): 1, 13)</p>	<p>Significant Impact</p>	<p>Potentially Significant Unless Mitigated</p>	<p>Less than Significant Impact</p>	<p>Not Applicable</p>
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[ ]                      [ ]                      [X]                      [ ]

The proposed project would not have a demonstrably negative aesthetic effect by causing a substantial alteration of the existing visual resources. There would not be a substantial alteration, such as in an abrupt transition in land use, because the area is highly urbanized and no changes in land use would occur. Bridge design strategies would be employed that retain more visibility of Mt Tamalpais from East Sir Francis Drake Boulevard and enhance pedestrian and cyclist’s viewing opportunities of Corte Madera Creek. There would not be any disharmony with adjacent land uses because of height, bulk, or massing of structures, since the area already contains bridges, an unused railroad trestle, and pedestrian walkways. Although additional lighting will be required for the pathway, the amount would not be substantial. Although lighting from the multi-use pathway would cast additional nighttime light on the area around the pathway, the increase is not anticipated to negatively impact the surrounding natural environment. To minimize glare from path lighting the contractor will use lamps that direct light toward the path. As a result, there would not be any case of substantial amount of light, glare, or shadow. Therefore, the proposed project would have a less than significant impact on aesthetics and visual resources.

**Tree Replacement**

The lead agency and its contractors will replace trees and shrubs removed during construction (Mitigation Measure 21) and re-seed areas disturbed by construction (Mitigation Measures 5 and 6).

**Bridge Aesthetics**

The lead agency and its contractors will develop bridge aesthetics that harmonize with the natural color, texture, and form of Corte Madera Creek, salt marsh, and the distant ridgelines.

14. CULTURAL RESOURCES. *Would the proposal:*

a) <b>Disturb paleontological, archaeological, or historical sites, objects, or structures?</b> (source #(s): 14, 15, 16)	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[X]	[ ]

The proposed project would not disturb paleontological, archaeological, or historic sites. The Study Area does contain one historic-era resource, a 0.5-mile segment of the Northwestern Pacific Railroad and its associated trestle, which were constructed in the early twentieth century. However, it was determined that the neither the railroad segment, nor its associated trestle appear to meet the criteria for listing on the California Register of Historical Resources, nor do they constitute a historical resource for the purposes of CEQA (Appendix A: 14). Additionally, no prehistoric archaeological materials were identified during the archaeological studies (Appendix A: 15, 16). Therefore, the proposed project would have a less than significant impact on paleontological, archaeological, or historical sites, objects, or structures.

b) <b>Have the potential to cause a physical change which would adversely affect unique ethnic cultural values, or religious or sacred uses within the project area?</b> (source #(s): 14, 15, 16)	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[ ]	[X]

The proposed project would not cause a physical change that would adversely affect unique ethnic cultural values, or religious, or sacred uses.

15. SOCIAL AND ECONOMIC EFFECTS. *Would the proposal result in*

a) <b>Any physical changes which can be traced through a chain of cause and effect to social or economic impact? (source #(s): 17)</b>	Significant Impact	Potentially Significant Unless Mitigated	Less than Significant Impact	Not Applicable
	[ ]	[ ]	[ ]	[X]

The proposed project would not result in any physical changes from social or economic impacts.

**VI. MANDATORY FINDINGS OF SIGNIFICANCE.** Pursuant to Section 15065 of the State EIR Guidelines, a project shall be found to have a significant effect on the environment if any of the following are true:

*(Please explain your answer after each question)*

- |    |  |                   |                  |                     |
|----|--|-------------------|------------------|---------------------|
| a) | Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory? | <b>Yes</b><br>[ ] | <b>No</b><br>[X] | <b>Maybe</b><br>[ ] |
|----|--|-------------------|------------------|---------------------|

The proposed project is located on a site that is currently developed and is surrounded by urban land uses. Based upon background research and site visits, the proposed project does not have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. Any potential short-term increases in potential effects on the environment during construction are mitigated to a less than significant level as described in Section V of this Initial Study.

- |    |   |                   |                  |                     |
|----|---|-------------------|------------------|---------------------|
| b) | Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? | <b>Yes</b><br>[ ] | <b>No</b><br>[X] | <b>Maybe</b><br>[ ] |
|----|---|-------------------|------------------|---------------------|

As described in Section V of this Initial Study, any potential environmental impacts from the proposed project would be mitigated to a less than significant level.

- |    |   |                   |                  |                     |
|----|---|-------------------|------------------|---------------------|
| c) | Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects). | <b>Yes</b><br>[ ] | <b>No</b><br>[X] | <b>Maybe</b><br>[ ] |
|----|---|-------------------|------------------|---------------------|

As described in Section V of this Initial Study, any potential environmental impacts from the proposed project, including the project's potential contribution to cumulative impacts, would be mitigated to a less than significant level. Therefore, the proposed project does not have impacts that are individually limited but cumulatively considerable.

- |  | <b>Yes</b> | <b>No</b> | <b>Maybe</b> |
|--|------------|-----------|--------------|
| d) Does the project have environmental effects which cause substantial adverse effects on human beings, either directly or indirectly. | [ ]        | [X]       | [ ]          |

As described in Section V of this Initial Study, any potential environmental impacts from the proposed project would be mitigated to a less than significant level.

**VII. DETERMINATION: (Completed by Transportation Authority of Marin). Pursuant to Sections 15081 and 15070 of the State Guidelines, the forgoing Initial Study evaluation, and the entire administrative record for the project:**

- I find that the proposed project WOULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION would be prepared.
  
- I find that although the proposed project could have a significant effect on the environment, there would not be a significant effect in this case because the mitigation measures described on the attached sheet have been added to the project. A NEGATIVE DECLARATION would be prepared.
  
- I find that the proposed project may have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
For

## APPENDIX A

### INITIAL STUDY ENVIRONMENTAL CHECKLIST FORM

#### DOCUMENTS INCORPORATED BY REFERENCE

The following documents specifically have been used in evaluating the proposed project and have been incorporated by reference into the foregoing Initial Study pursuant to Section 15150 of the State CEQA Guidelines. The number assigned to each information source corresponds to the number listed in parenthesis following the incorporating topical question of the Initial Study checklist. These documents are both a matter of public record and available for public inspection at the Planning Division of the Marin County Community Development Agency, Room 308, Civic Center, 3501 Civic Center Drive, San Rafael. The information incorporated from these documents shall be considered to be set forth fully in the Initial Study.

1. Marin Countywide Plan, CDA – Planning Division (2007)\*
2. City of Larkspur General Plan (2004)\*
3. Marin County Code Title 22 (Zoning Ordinance)\*
4. Preliminary Foundation Report – Central Marin Ferry Connection; Parikh Consultants Inc. (2009)\*
5. Highway 101 Greenbrae Corridor: Existing Transportation Issues, Opportunities, and Constraints – Jacobs (2006)\*
6. Transit Noise and Vibration Impact Assessment – Federal Transit Administration (2006)
7. Water Quality Study Report – Wreco (2010)
8. Location Hydraulic Study Report – Wreco (2010)
9. Wetland Delineation Report – Jacobs (2009)
10. Natural Resources Study – Jacobs (2010)
11. Phase I Environmental Site Assessment – Baseline (2009)
12. Phase II Soil Investigation – Baseline (2010)

\* Reports available upon request

13. Visual Resource Impact Assessment Report – Jacobs (2010)
14. Historic Resources Evaluation Report – JRP (2010)
15. Archaeological Survey Report – Far Western (2009)
16. Subsurface Geoarchaeological Investigations Report – Far Western (2009)
17. Community Impacts Assessment – Jacobs (2010)

**APPENDIX B**

**MITIGATION AND MONITORING REPORT PLAN**

Mitigation Measure	Timing	Implementing Entity	Monitoring Entity
<b>Section V.5(a) Air Quality/Greenhouse Gas Emissions</b>			
<p><b>Mitigation Measure 1: Dust Control</b>            During all phases of construction, the following dust control procedures shall be implemented:</p> <ul style="list-style-type: none"> <li>• Water all active construction areas as needed.</li> <li>• Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).</li> <li>• Sweep paved access roads, parking areas and staging areas at construction sites daily (with water sweepers).</li> <li>• Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent paved streets.</li> </ul>	During Construction	Contractor	TAM
<b>Section V.7(a) Biological Resources</b>			
<p><b>Mitigation Measure 2: Wetland Habitat Restoration</b>            The lead agency shall coordinate with USACOE, USFWS, and CDFG to establish mitigation measures to offset impacts to the tidal salt marsh in accordance with Section 404 of the Clean Water Act, FESA, and CESA. Impacts to the tidal salt marsh shall be mitigated through the restoration or creation of wetland habitat. The portion of tidal salt marsh subject to mitigation through the creation or restoration of wetland habitat would include only the area of permanent impact associated with the multi-use pathway (i.e., columns, footings, and piers placed within the tidal salt marsh) (0.03 acre [0.01 hectare]). For this area, habitat shall be created, restored, or set aside in perpetuity suitable in a 2:1 ratio for on-site and 3:1 ratio for off-site mitigation. This is in compliance with the County of Marin Communitywide Plan wetland restoration policy (BIO 3.2). Alternately, mitigation credits may be purchased through an approved mitigation bank, if available. If no mitigation bank is available, mitigation may be accomplished through support of existing or planned conservation projects. Because California clapper rail, California black rail, and salt marsh harvest mouse all share this type of habitat, the proposed mitigation would also offset impacts to these species. This mitigation measure shall be implemented through coordination with regulatory agencies and is subject to review and approval. The area associated with the temporary construction access (0.38 acre [0.15 hectare]) would not be included in the mitigation associated with the permanent impacts as described above. However, mitigation for temporary impacts to this area shall be accomplished through replanting/reseeding as described in Mitigation Measure 6.</p>	After construction activities are completed	TAM	TAM

Mitigation Measure	Timing	Implementing Entity	Monitoring Entity
<p><b>Mitigation Measure 3: Establish Boundary for Work Area within Sensitive Habitat</b>  Barrier fencing shall be established within the salt marsh habitat to delineate the boundary between where construction activities are allowed and prohibited. The fencing would prevent construction encroachment into the surrounding prohibited areas of the salt marsh and creek habitats. The construction specifications shall contain clear language that restricts construction-related activities, as well as prohibits vehicle operation, material and equipment storage, and other surface-disturbing activities within the prohibited areas. In addition, hydrologic features (i.e., topographic depressions, roadside ditches, culverts, etc.) outside the Study Area shall not be manipulated (i.e., re-routed, dredged, filled, graded, etc.). This would reduce potential impacts to wetlands outside of the Study Area that may be hydrologically connected to wetlands within the Study Area.</p>	<p>Prior to initiating and maintain throughout construction</p>	<p>Contractor</p>	<p>TAM</p>
<p><b>Mitigation Measure 4: Implement Erosion Control Measures and Storm Water Pollution Prevention Plans</b>  A Stormwater Pollution Prevention Plan (SWPPP) and erosion control BMPs shall be developed to minimize wind or water-related erosion. A SWPPP shall be developed for the project as is required by the RWQCB for all projects that have at least one acre of soil disturbance. The project shall be constructed in a manner that avoids erosion on the project and prevents accumulation of silt in drainage ways. This may be done through the use of erosion dams, temporary ground covers, and detention or settling structures. This mitigation plan shall be implemented through development of an erosion control plan subject to review and approval.</p> <p>The following protective measures shall be included in the SWPPP:</p> <ul style="list-style-type: none"> <li>• No discharge of pollutants from vehicle and equipment cleaning shall be allowed into the storm drain or water courses.</li> <li>• Vehicle and equipment fueling and maintenance operations must be at least 100 feet (30 meters) away from water courses, unless separated by a topographic or drainage barrier.</li> <li>• Concrete waste shall not be allowed into water courses and shall be collected in washouts. Water from curing operations will be properly disposed of off-site.</li> <li>• Dust control measures shall be implemented, including using water trucks and the application of tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when required.</li> <li>• Coir rolls shall be installed along or at the base of slopes during construction to capture sediment.</li> <li>• Protection of graded areas from erosion shall occur using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas.</li> <li>• Use of bio-filtration strips and swales to receive stormwater discharges from the adjacent roadway, or other impervious surfaces shall be incorporated</li> </ul>	<p>Complete SWPPP prior to construction and implement throughout construction</p>	<p>Contractor</p>	<p>TAM</p>

Mitigation Measure	Timing	Implementing Entity	Monitoring Entity
<p><b>Mitigation Measure 5: Replant/Re-Seed to Stabilize Disturbed Area</b>  The applicant shall plant or re-seed all slopes affected by the proposed project with native grasses and shrubs to stabilize the slopes against erosion as part of the construction activities. This shall occur after ground disturbing construction activities associated with the multi-use pathway are completed. The applicant shall install native plant species appropriate for the location of the disturbed area.</p>	During Construction	Contractor	TAM
<p><b>Mitigation Measure 6: Replant/Re-Seed Salt Marsh Habitat</b>  The applicant shall plant or re-seed the salt marsh habitat along the north bank of Corte Madera Creek affected by the proposed project to revegetate the disturbed habitat as part of the construction activities. This may include hydro seeding and would occur after ground disturbing construction activities associated with the multi-use pathway are completed. The applicant shall install native salt marsh plant species. Examples include saltgrass (<i>Distichlis spicata</i>), dwarf spikerush (<i>Eleocharis parvula</i>), alkali heath (<i>Frankenia grandifolia</i>), marsh gumplant (<i>Grindelia stricta</i>), and pickleweed (<i>Sarcocornia pacifica</i>) as appropriate for the location of the disturbed area and per an agency-approved Mitigation and Monitoring Plan.</p>	During Construction	Contractor	TAM
<p><b>Mitigation Measure 7: Provide Environmental Awareness Training</b>  Before the onset of construction activities, a qualified biologist would conduct an education program for all construction personnel. At a minimum the training shall include:</p> <ul style="list-style-type: none"> <li>• A description of California clapper rail, salt marsh harvest mouse, tidewater goby, Central California Coast steelhead, and Central California Coast coho salmon and their habitats.</li> <li>• The occurrence of these species within the Study Area, an explanation of the status of these species and protection under the FESA and CESA.</li> <li>• The measures that are being implemented to conserve the species and their habitats as they relate to the work site, and the work site boundaries within which construction may occur.</li> <li>• A fact sheet conveying this information shall be distributed to the construction personnel and other project personnel who may enter the site.</li> <li>• Upon completion of the program, personnel shall sign a form stating that they attended the program and understand all the mitigation measures and implications of the FESA and CESA</li> </ul>	Prior to commencement of construction activities	TAM	TAM

Mitigation Measure	Timing	Implementing Entity	Monitoring Entity
<p><b>Mitigation Measure 8: Restrictions on Construction Activities</b>  The following restrictions on construction activities shall be imposed:</p> <ul style="list-style-type: none"> <li>• A speed limit of 15 miles per hour in unpaved areas of the Study Area shall be enforced to reduce dust and excessive soil disturbance.</li> <li>• Construction staging, storage, and parking areas shall be located within the SMART right-of-way and outside of any prohibited work areas (or if owner concurs on adjacent private property such as the Attwood Property). Access routes and the number and size of staging and work areas shall be limited to the minimum necessary to construct the proposed project. Routes and boundaries of roadwork shall be clearly marked prior to initiating construction or grading.</li> <li>• All food and food-related trash items shall be enclosed in sealed trash containers and removed completely from the site at the end of each day.</li> <li>• No pets from construction and project personnel shall be allowed anywhere in the proposed project work area during construction.</li> <li>• No firearms shall be allowed on the project site except for those carried by authorized security personnel or local, State, or Federal law enforcement officials.</li> <li>• All equipment shall be maintained in order to prevent leaks of automotive fluids such as gasoline, oils, or solvents. A Spill Response Plan would be prepared. Hazardous materials such as fuels, oils, solvents, etc. shall be stored in sealable containers and designated locations at least 100 feet (30 meters) from wetlands and aquatic habitats.</li> <li>• Servicing of vehicles and construction equipment including fueling, cleaning, and maintenance shall occur at least 100 feet (30 meters) from any aquatic habitat unless they are separated by topographic or drainage barrier or unless they are located at an already existing gas station. Staging areas may occur closer to the project activities as required.</li> <li>• Construction in inundated drainage shall be conducted with coffer dams to isolate dewatered areas from active channel habitats.</li> <li>• Use of herbicides shall be restricted in the prohibited areas (i.e., tidal salt marsh habitat).</li> </ul>	<p>Prior to and during construction</p>	<p>Contractor</p>	<p>TAM</p>

Mitigation Measure	Timing	Implementing Entity	Monitoring Entity
<p><b>Mitigation Measure 9: USFWS-Approved Biologist</b>  The lead agency shall consult with the USFWS to designate an approved biologist that would be on-call during all construction activities that occur within the Study Area. Qualifications of the biologist(s) must be presented to the USFWS for review and written approval prior to groundbreaking at the project site. The biologist shall perform preconstruction surveys. The biologist's findings shall be presented to the lead agency for any necessary consultation and compliance with USFWS (or other agencies) requirements. The lead agency shall consult with Federal and/or State agencies as necessary.</p>	Prior to and during construction	TAM	TAM
<p><b>Mitigation Measure 10: Post-construction Compliance Form</b>  A post-construction compliance report shall be prepared by the on-call biologist, which shall be provided to the USFWS within forty (40) working days following project completion or within sixty (60) calendar days of any break in construction activity lasting more than forty (40) working days. Any compliance forms prepared by the biologist shall be provided to the lead agency for consultation with the USFWS as necessary for compliance with Federal requirements.</p>	After construction activities are completed	TAM	TAM
<p><b>Mitigation Measure 11: Special-status Species Construction Avoidance Timeline</b>  <i>California Clapper Rail</i>  Construction activities within permitted work areas shall occur between September 1 and January 31 to reduce potential impacts to California clapper rail breeding/nesting season. If construction must occur during the period from February 1 to August 31, a qualified wildlife biologist shall conduct preconstruction surveys for nesting birds. If an active nest is found, the bird shall be identified to species, and the approximate distance from the closest work site to the nest estimated. No additional measures need be implemented if active nests are more than 300 feet from the nearest work site. If active nests are closer than 300 feet to the nearest work site and there is the potential for destruction of a nest or substantial disturbance to nesting birds due to construction activities, a plan to monitor nesting birds during construction shall be prepared and submitted to the USFWS and CDFG for review and approval. Disturbance of active nests shall be avoided until it is determined that nesting is complete and the young have fledged.</p> <p><i>California Black Rail</i>  Construction activities within permitted work areas shall occur between July 1 and January 31 to reduce potential impacts to California black rail breeding/nesting season. If construction must occur during the period from February 1 to June 30, a qualified wildlife biologist shall conduct preconstruction surveys for nesting birds. If an active nest is found, the bird shall be identified to species, and the approximate distance from the closest work site to the nest estimated. No additional measures need be implemented if active nests are more than the 300 feet from the nearest work site. If active nests are closer than 300 feet to the nearest work site and there is</p>	During construction	Contractor	TAM

Mitigation Measure	Timing	Implementing Entity	Monitoring Entity
<p>the potential for destruction of a nest or substantial disturbance to nesting birds due to construction activities, a plan to monitor nesting birds during construction shall be prepared and submitted to the USFWS and CDFG for review and approval. Disturbance of active nests shall be avoided until it is determined that nesting is complete and the young have fledged.</p> <p><i>Salt Marsh Harvest Mouse</i> Construction activities within permitted work areas shall occur between December 1 and February 28 to reduce potential impacts to salt marsh harvest mouse breeding/nesting season. If construction must occur during the period from March 1 to November 30, a qualified wildlife biologist shall conduct preconstruction surveys for salt marsh harvest mouse.</p> <p>If a monitoring plan is required, it will be submitted to the lead agency for consultation with the USFWS and/or CDFG, as necessary.</p>			
<p><b>Mitigation Measure 12: Halt Work if Special-status Species are observed in Work Area</b> The resident engineer shall halt work and immediately contact the lead agency, approved on-call biologist, USFWS, and CDFG in the event that a California clapper rail, California black rail, or salt marsh harvest mouse enter the construction zone. The resident engineer shall suspend all construction activities in the immediate construction zone until the animal leaves the site voluntarily, or is removed by the biologist to a release site using USFWS-approved transportation techniques.</p>	During construction	Contractor	TAM
<p><b>Mitigation Measure 13: Care for Injured Special-status Species</b> Injured special-status species shall be cared for by a licensed veterinarian or other qualified person, such as the on-site biologist. Dead individuals shall be preserved according to standard museum techniques and held in a secure location. The USFWS and the CDFG shall be notified within one working day of the discovery of death or injury to special-status species.</p>	During construction	Contractor	TAM
<p><b>Mitigation Measure 14: Install an Exclusion Fence for Salt Marsh Harvest Mouse</b> A temporary exclusionary fence shall be installed to prevent salt marsh harvest mice from entering the permitted work area within the salt marsh. The fence shall be maintained and kept in proper working condition for the duration of the construction activities that occur within the salt marsh.</p>	During construction	Contractor	TAM

Mitigation Measure	Timing	Implementing Entity	Monitoring Entity
<p><b>Mitigation Measure 15: Work in Live Streams Shall be Minimized</b>            If it is necessary to conduct work in a live stream, the workspace shall be isolated to avoid construction activities in flowing water. The proposed project shall allow fish passage past the project area. Adequate water depth and channel width must be maintained at all times for fish passage. Prior to construction activities, the workspace would be isolated from flowing water to prevent sedimentation and turbidity and avoid impacts to fish. The diversion shall remain in place during the project and be removed immediately after work is completed in a manner that would allow flow to resume with the least disturbance to the substrate.</p>	During construction	Contractor	TAM
<p><b>Mitigation Measure 16: Dewatering</b>            If dewatering within the open waters of Corte Madera Creek is required, either a pump shall remove water to an upland disposal site, or a filtering system shall be used to collect the water and return clear water to the creek. The pump intake shall be fitted with a fish exclusion device that meets the National Marine Fisheries Service (NMFS) fish screening criteria. This includes openings that are no bigger than either 3/32 inch or ¼ inch depending on the presence of fry or fingerling salmonid juveniles.</p>	During construction	Contractor	TAM
<p><b>Mitigation Measure 17: Presence of Biologist During Dewatering</b>            During dewatering activities, a fisheries biologist shall be present to salvage individuals should they be present. Fish shall be netted, placed in a bucket of water, and immediately moved to a downstream portion of the creek. Records of species, relative size, and number of individuals shall be kept. Periodic checks of the work area shall occur to ensure that fish have not re-entered the work area.</p>	During construction	TAM	TAM
<p><b>Mitigation Measure 18: Placement of Non-toxic Structures in Streams</b>            All materials placed in the stream, such as pilings and retaining walls, shall be non-toxic. Any combination of wood, plastic, cured concrete, steel pilings, or other materials used for in-channel structures shall not contain coatings, treatments, or consist of substances deleterious to aquatic organisms that may leach into the surrounding environment in amounts harmful to aquatic organisms.</p>	During construction	Contractor	TAM
<p><b>Mitigation Measure 19: Minimize Disturbance from Construction Access</b>            Disturbance to existing grades and vegetation shall be limited to the actual site of the project and necessary access routes. Placement of all roads, staging areas, and other facilities shall avoid and limit disturbance to streambank or stream channel habitat to the minimum area necessary to complete the work. When possible, existing ingress or egress points shall be used and/or work performed from the top of the creek banks. Obvious barriers to fish passage shall be removed to facilitate upstream movement.</p>	During construction	Contractor	TAM

Mitigation Measure	Timing	Implementing Entity	Monitoring Entity
<p><b>Mitigation Measure 20: Erosion Control</b>  Erosion control and sediment detention devices (e.g., well-anchored sandbag coffer dams, straw bales, “Aqua Dam,” or silt fences) shall be incorporated into the project design and implemented at the time of construction. These devices shall be in place during construction activities. If necessary, these devices shall be in place after construction for the purposes of minimizing fine sediment and sediment/water slurry input to flowing water and for detaining sediment laden water on-site. These devices shall be placed at all locations where the likelihood of sediment input exists. A supply of erosion control materials shall be kept on hand to cover small sites that may become bare and to respond to sediment emergencies.</p>	During construction	Contractor	TAM
<p><b>Mitigation Measure 21: Comply with Local Tree Removal Ordinances</b>  Work shall conform to local tree ordinances for construction projects. The City of Larkspur Heritage tree ordinance stipulates that the removal of trees with a 50 inches circumference or greater, measured at 2 feet above grade, requires a permit. Replacement of removed trees shall occur at 2:1 ratio for heritage trees 15–24 inches in diameter and 4:1 ratio for trees greater than 24 inches in diameter. The specific replacement shall be determined during the permit review process.</p>	During construction	Contractor	TAM
<p><b>Mitigation Measure 22: Minimize Dispersal of Noxious Weeds into Un-infested Areas</b>  Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weeds. Identify areas with populations of high priority noxious weed infestations and flag areas for easy identification by construction crews. Clean construction equipment after leaving areas with high priority noxious weeds.</p>	During construction	Contractor	TAM
<p><b>Mitigation Measure 23: Construction Activities Conducted Outside of Migratory Bird Nesting Season</b>  Shrub and tree trimming and/or removal activities associated with the proposed project shall be conducted outside the nesting season (generally between February 1 and August 31). If shrub and tree removal is scheduled to occur during the nesting season, a qualified wildlife biologist, familiar with the species and habitats in the Study Area, shall conduct preconstruction surveys for nesting birds with suitable nesting habitat in the Study Area as described in Mitigation Measure 24.</p>	During construction	Contractor	TAM
<p><b>Mitigation Measure 24: Conduct Pre-construction Surveys for Nesting Birds</b>  The nesting bird surveys shall be conducted within one week before initiation of construction activities within those habitats. If no active nests are detected during surveys, construction may proceed. If active nests are detected then Mitigation Measure 25 shall be implemented.</p>	During construction	Contractor	TAM

Mitigation Measure	Timing	Implementing Entity	Monitoring Entity
<p><b>Mitigation Measure 25: Install Exclusionary Fencing for Migratory Birds</b>  A no-disturbance buffer shall be established around nests identified during preconstruction surveys. The extent of the no-disturbance buffers shall be determined by a wildlife biologist in consultation with CDFG and shall depend on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographic or artificial barriers. The purpose of the buffer is to avoid disturbance or destruction of the nest until after the breeding season, or until a wildlife biologist determines that the young have fledged (usually late-June to mid-July). Within this buffer, all non-essential construction activities (e.g., equipment storage, meetings) shall be avoided. However, construction activities can proceed if the biological monitor determines that the individual is not likely to abandon the nest during construction.</p>	During construction	Contractor	TAM
<p><b>Mitigation Measure 26: Conduct In-water Work Outside of Northern California Rainy Season</b>  Work within an inundated drainage or channel, or in-water work, shall be conducted outside the Central and Northern California rainy season of October 15 through April 15. Work within upland areas (i.e., not in-water work) that is conducted during the rainy season shall require the implementation of BMPs described in Mitigation Measure 4.</p>	During construction	Contractor	TAM
<p><b>Mitigation Measure 27: Restore Flows Following the Completion of Construction</b>  Following completion of the project, all materials used to maintain flow and divert water from the Study Area during the construction period, including, but not limited to, coffer dams, pipes, filter fabric, fill material, and gravel, shall be removed. All excess soil shall be disposed at an approved upland site.</p>	During construction	Contractor	TAM

Section V.10(a) Noise

Mitigation Measure 28: Construction Noise Control Measures

- A construction noise reduction plan shall be adopted by the construction management team for this project that designates a noise disturbance coordinator at the construction site to implement the provisions of the plan.
- With the exception of pile driving, construction activity shall be allowed only between the hours of 7:00 a.m. and 6:00 p.m. on Monday through Friday and 9:00 a.m. to 5:00 p.m. on Saturday. Given the very loud nature of pile driving, pile driving shall be limited from the hours of 8:00 a.m. to 6:00 p.m. on Monday through Friday. Pile driving shall end by 4:30 p.m. each day.
- All powered construction equipment shall be equipped with intake and exhaust mufflers recommended by the manufacturers. Pavement breakers, pile drives, and jackhammers shall be equipped with acoustical attenuating shields or shrouds recommended by the manufacturers
- Construction equipment shall have sound-control devices no less effective than those provided on the original equipment. No equipment shall have an un-muffled exhaust.

During construction

Contractor

TAM

TAM

**Transportation Authority of Marin  
Central Marin Ferry Connection Multi-use Pathway**

**Phase I Project**

**Marin County, California**

**APPENDIX A  
TECHNICAL STUDIES**

TAM Project No.: C-FY05/06-007  
Jacobs Carter Burgess Project No: CB701729



## Table of Contents

- Water Quality Study
- Location Hydraulic Study
- Wetland Delineation
- Natural Resources Study
- Phase I Environmental Site Assessment
- Phase II Soil Investigation
- Visual Resource Impact Assessment
- Historic Resources Evaluation Report
- Archaeological Survey
- Subsurface Geoarchaeological Investigation
- Community Impact Assessment



TAM

Transportation Authority of Marin  
Central Marin Ferry Connection  
Marin County, California  
Phase 1

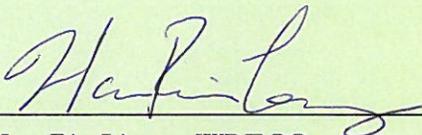
WATER QUALITY STUDY REPORT

Version 3, April 2010

TAM Project No.: C-FY05/06-007

Jacobs Carter Burgess Project No.: CB701729

SUBMITTED BY:

  
Han-Bin Liang - WRECO

Date

4/23/2010

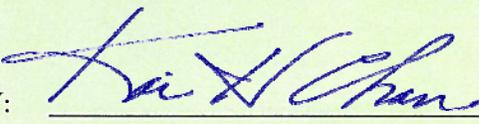
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Water Quality Study Report  
Central Marin Ferry Connection Project  
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## Appendix C Permeable Pavement Matrix

## **Executive Summary**

The Transportation Authority of Marin (TAM) proposes to create a new multi-use pathway intended to further promote non-motorized commute alternatives and enhanced recreational travel. The proposed Central Marin Ferry Connection Project (Project) is of vital importance to central Marin County, as it would provide safe, direct, and convenient pedestrian/bicycle access between local transit facilities such as the future Sonoma Marin Area Rail Transit (SMART) Larkspur station and the existing Larkspur Ferry Terminal, as well as access to schools, business centers, and residential communities. TAM plans to construct the Project in two phases. Phase I of the proposed Project, would construct a multi-use pathway adjacent to the east side of U.S. Highway 101 that would include an overcrossing above East SFDB. See Figure 1 and Figure 2 for location and vicinity maps of the Project area and Project limits.

WRECO completed this Water Quality Study Report to assess and analyze the water quality of both surface and groundwater that the Project could affect. The report evaluates the impacts of potential pollution in an effort to protect receiving water bodies. The general approach of the Project is to avoid or minimize impacts and to implement measures for any unavoidable impacts. The components of this study included any proposed activity that may result in impacts to water resources, erosion of stream banks, or potential increases in sediment load and other pollutants to surface and ground waters.

The Project is within the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) jurisdiction, in the Bay Bridges Hydrologic Unit within the San Rafael Hydrologic Area. The Project has one direct receiving water body: Corte Madera Creek. The Corte Madera Marsh State Ecological Reserve is an indirect receiving water body, and it drains to Central San Francisco Bay approximately 0.4 miles downstream of the proposed pathway. Corte Madera Creek is tidally influenced and is considered a navigable water of the U.S. Corte Madera Creek and San Francisco Bay are included on the California Water Act (CWA) 303(d) List of Water Quality Limited Segments and therefore do not meet water quality standards. Corte Madera Creek and San Francisco Bay have beneficial uses according to the Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin.

There are many construction related activities that may affect storm water quality. There is potential for temporary impacts to occur due to increased erosion as well as from spills and leaks of fluids associated with vehicles and equipment. The soils in the Project area have mostly low infiltration rates; therefore, storm water mostly runs off. Permanent impacts in Corte Madera Creek may occur due to pile driving and the potential reinforcement or removal of a portion or all of the trestle bridge. Proposed mitigation measures to reduce impacts to Corte Madera creek and adjacent wetlands, measures include: establishing boundaries for work within sensitive areas, planting/re-seeding salt marsh habitats, purchasing off-site wetland habitats and placing nontoxic structures in the streams.

To address temporary impacts to water quality, a Storm Water Pollution Prevention Plan (SWPPP) would be required. The SWPPP would include Best Management Practices (BMPs) for erosion and sediment control. Proposed measures to be included in the SWPPP include: limiting work during the rainy season October 15 through April 15, minimizing discharge of vehicle pollutant to storm drains and water courses, protecting graded area from erosion with the use of appropriate erosion control materials and planting/re-seeding disturbed with native grasses and shrubs to stabilize disturbed areas and minimize impacts to water quality.

The Project is anticipated to create approximately 3.8 acres of disturbed soil area (DSA). BMPs would be necessary, as storm water from the Project has the potential to transport disturbed soil and other pollutants resulting from construction to nearby storm drains and water bodies. Additionally, temporary impacts to water resources may result from dewatering activities, vegetation removal, and temporary fill due to construction or alterations to the existing storm water drainage systems. Due to the shallow depth to groundwater, temporary impacts may occur due to accidental spills, the release of pollutants, or grading/construction activities at depth.

In addition to temporary impacts, there would be an increase in impervious areas. This increase in impervious area has the potential to increase the volume and velocity of storm water flow to downstream receiving bodies, which may increase erosion potential. It may also potentially increase pollutant loading to receiving water bodies. To address these potential impacts, the Project proponent would likely be required to consider treatment as part of the permits and agreements obtained for the Project from local, state and federal regulatory agencies.

BMPs for this Project would include pervious pavements on the pathway north of Sir Francis Drake Boulevard. If slopes at 3:1 (H:V) are possible, then biofiltration swales or strips would be incorporated in the area north of Sir Francis Drake Boulevard. To treat the runoff from the bridge and the elevated pathway, the runoff would be collected and piped to the biofiltration swales or strips (if grading is possible). Another option for treatment BMPs would be to treat storm water runoff at offsite locations, such as the parking lots adjacent to the Project, and requesting treatment credits for the Project. Refer to the Project Storm Water Data Report (WRECO 2010) for more details on the BMPs.

## Acronyms

BATEA	Best Available Technology Economically Achievable
BCDC	San Francisco Bay Conservation and Development Commission
BCT	Best Conventional Technology
BMP	Best Management Practices
Caltrans	California Department of Transportation
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CMFC	Central Marin Ferry Connection
CWA	Clean Water Act
DSA	Disturbed Soil Area
EPA	Environmental Protection Agency
ESA	Environmentally Sensitive Areas
FEMA	Federal Emergency Management Agency
FIS	Flood Insurance Study
HOV	High Occupancy Vehicle
HR	Hydrologic Region
HSG	Hydrologic Soil Group
LID	Low Impact Development
MCSTOPPP	Marin County Stormwater Pollution Prevention Program
MCTT	Multi-Chambered Treatment Train
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
MTC	Metropolitan Transportation Commission
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries Service	NOAA's National Marine Fisheries Service
NOC	Notification of Construction
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
PID	Project Initiation Documentation
PPDG	Project Planning and Design Guide
PS&E	Plans, Specifications and Estimates
PSR	Project Study Report
RWQCB	Regional Water Quality Control Board
SFDB	Sir Francis Drake Boulevard
SMART	Sonoma Marin Area Rail Transit
SWMP	Statewide Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAM	Transportation Authority of Marin
TDC	Targeted Design Constituent
TMDL	Total Maximum Daily Loads
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture

Water Quality Study Report  
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USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
WQA	Water Quality Act
WQV	Water Quality Volume

# 1 GENERAL DESCRIPTION

## 1.1 Project Description

The Transportation Authority of Marin (TAM) is proposing to construct a new multi-use pathway intended to further promote non-motorized commute alternatives and enhanced recreational travel within the City of Larkspur in Marin County, California. TAM plans to construct the project in two phases. The pathway would generally follow the County's north-south greenway. Phase I of the proposed project, and the scope of this proposed project, would construct a multi-use pathway adjacent to the east side of U.S. Highway 101 from post mile (PM) 14.7 to PM 15.3 that would include an overcrossing above East Sir Francis Drake Boulevard (East SFDB) and connect to the existing multi-use pathway located south of East SFDB. Phase I would connect to the southern limit of the Cal Park Hill Tunnel Rehabilitation and Path Project to the north, which is currently under construction. Phase II of the proposed project would extend the Phase I multi-use pathway to the south along the east side of U.S. Highway 101 to Wornum Drive and include an overcrossing above Corte Madera Creek and provide access to the Greenbrae Boardwalk. Once completed, the entire Central Marin Ferry Connection (CMFC) project (i.e., Phases I and II) would provide a continuous multi-use pathway from the Cal Park Hill Tunnel and the future Sonoma Marin Area Rail Transit (SMART) Larkspur Station in the north to Wornum Drive in the south.

Phases I and II of the proposed project have independent utility with respect to each other because each would serve their own purpose and would occur regardless of whether the other phase was to occur. The independent utility analysis does not include the Cal Park Hill Tunnel Rehabilitation and Path Project because it is under construction and constitutes an existing condition.

See , Figure 1. Project Location and Vicinity Map , and Figure 2. Project Study Area for location and vicinity maps of the Project area and Project limits and alignment.

This report will refer to Phase I of the project as the "Project."

## 1.2 Project History

The County of Marin identified the need to improve the U.S. Highway 101 corridor from the Tamalpais Drive interchange in the town of Corte Madera to the East SFDB interchange in the City of Larkspur (i.e., Greenbrae Corridor) as early as 1999. The need for improving the corridor was recognized as a high priority at the regional planning level and in 2004, Regional Measure 2 was approved, which provided funds to further develop the improvements. In coordination with Caltrans, TAM engaged the public in a series of public workshops to identify public concerns and develop several alternatives using context sensitive design principles to integrate stakeholder input into the project development process. This included considering the physical setting as well as addressing community values as part of the public outreach process. In addition to identifying motorized transportation alternatives throughout the corridor, non-motorized

commute alternatives for the U.S. Highway 101/SFDB interchange were developed, which included the improvements described in this proposed CMFC Phase I Project. The U.S. Highway 101/SFDB interchange serves a critical role in the Marin County multimodal transportation network because it serves freeway and local traffic, access to cities east and west of U.S. Highway 101, the Larkspur Ferry Terminal, the Marin Airporter, Larkspur Landing, and business and commercial developments along Corte Madera Creek.

### **1.3 Project Need**

Currently, north/south non-motorized travel is difficult at the U.S. Highway 101/SFDB interchange because East SFDB serves as a physical barrier between the Cal Park Hill Tunnel Rehabilitation and Path Project, located north of East SFDB, and the multi-use pathway, located south of East SFDB. Access to the multi-use pathway from the north side of East SFDB requires travelers to cross the roadway at Larkspur Landing Circle, which is located approximately 800 feet to the east. Also, Corte Madera Creek and the adjacent salt marsh provide a unique habitat viewing area opportunity; however, access to points from which to view the creek and salt marsh are limited.

### **1.4 Project Purpose**

The purpose of this proposed Project would be to improve public access and connectivity for non-motorized access by constructing a new SFDB overcrossing east of the U.S. Highway 101/SFDB interchange. This proposed project would also improve the opportunities to observe the Corte Madera Creek salt marsh area by constructing an elevated path along the north bank of Corte Madera Creek. This proposed Project is of importance to central Marin County because it would provide safe, direct, and convenient non-motorized access between local transit facilities including the future SMART Larkspur station and the existing Larkspur Ferry Terminal, as well as access to schools, business centers, and residential communities.

### **1.5 Phase I Project Description**

The proposed Project would include the following construction activities for Phase I:

- Conduct a geotechnical survey
- Construct a new multi-use pathway that extends from the existing Cal Park Hill Tunnel Rehabilitation and Path Project to East SFDB
- Construct a new multi-use pathway overcrossing structure and approach ramps at East SFDB
- Construct a new access ramp from the sidewalk on the north side of East SFDB to the new overcrossing
- Construct an approach ramp for the multi-use path south of East SFDB with viewing areas above the salt marsh area and Corte Madera Creek

- Construct a new access ramp that conforms to the existing multi-use paths and repave the existing multi-use pathway south of East SFDB from the Highway 101 northbound off ramp structure to the Larkspur Ferry Terminal entrance
- Construct retaining walls at various locations along the multi-use path
- Construct new sidewalks, curbs, and gutters along East SFDB
- Install signage, striping, lighting, screening, handrails, fencing, landscaping, truncated domes and/or bollards
- Construct storm water swales and detention basins
- Remove or retrofit all or a portion of the existing railroad trestle
- Relocate and protect existing utilities
- Construct temporary access areas within the salt marsh and Corte Madera Creek

## **1.6 Environmental Considerations**

The biological resource of primary concern within the Project is Corte Madera Creek and associated tidal marsh and wetlands. Natural communities within the Project area provide habitat for special-status species such as the California clapper rail, California black rail and salt-marsh harvest mouse. Based on the Marin County Anadromous Fish and Stream Conservation Area map, Corte Madera Creek contains habitat for Chinook salmon.



Figure 1. Project Location and Vicinity Map

Source: Jacobs Engineering

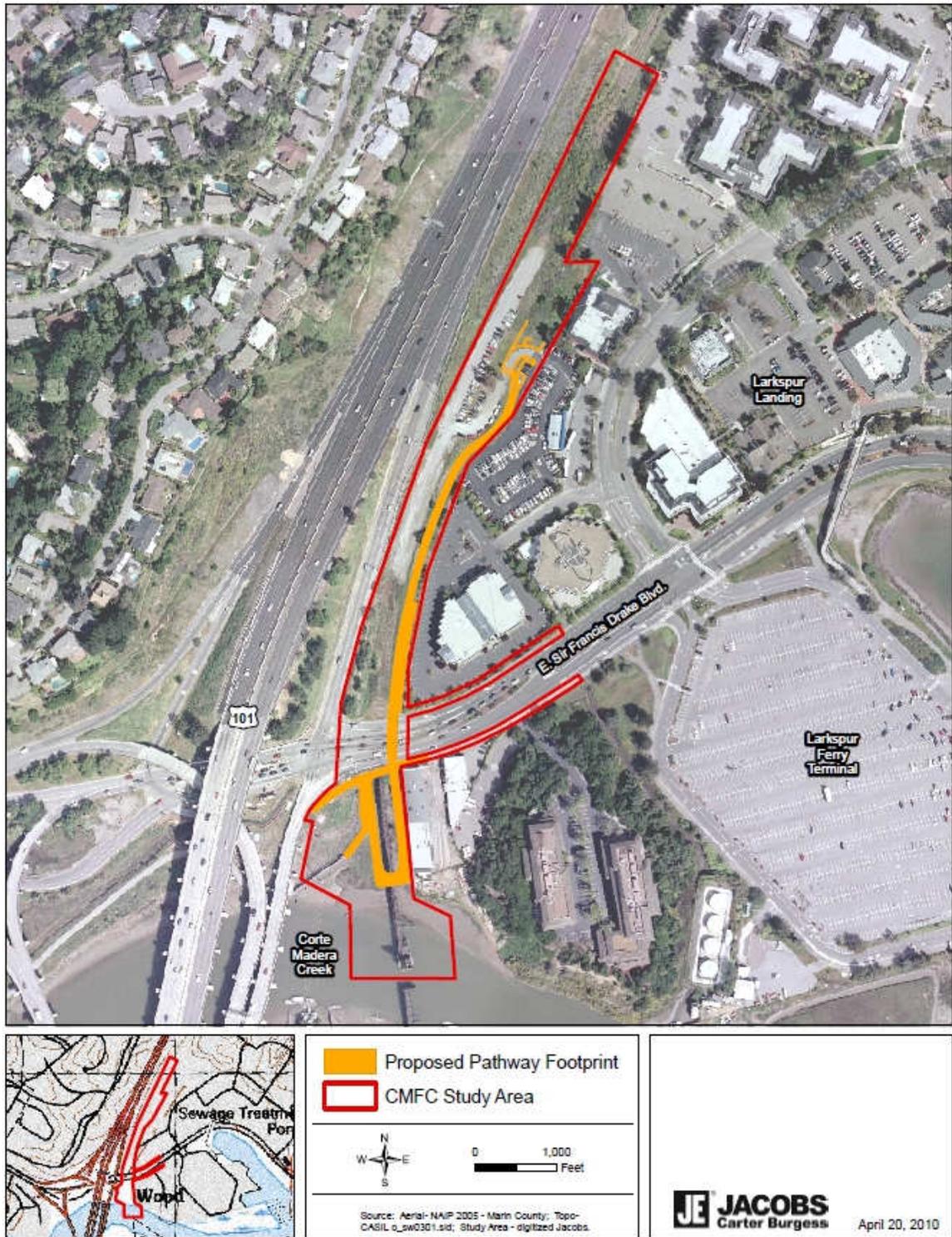


Figure 2. Project Study Area

Source: Jacobs Engineering

## **2 REGULATORY SECTION**

This section summarizes the regulatory context in which issues associated with water quality are mandated at the federal, state, and local levels.

### **2.1 Federal Requirements**

The primary regulation at the federal level for the quality of surface and groundwater is the Clean Water Act. Details are summarized in the sections below.

#### **2.1.1 Clean Water Act**

In 1972, the United States government passed the Federal Water Pollution Control Act, which later came to be known as the Clean Water Act (CWA). This legislation, issued by the United States Environmental Protection Agency (EPA), established the contemporary legal foundation and structure for regulating water quality throughout the United States. The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” The list below summarizes some of its more important sections:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines for all surface Waters of the United States (U.S.).
- Section 401 requires an applicant for any federal project that proposes an activity that may result in a discharge to Waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the CWA. Waters of the U.S. include all navigable water bodies and all water bodies that drain into a navigable water body.
- Section 402 established the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredge or fill material) into Waters of the U.S. The State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB) administer this permitting program in California; later sections discuss the NPDES in detail.
- Section 404 establishes a permit program for the discharge of dredge or fill material into Waters of the U.S. The United States Army Corps of Engineers (USACE) administers this permit program.

##### **2.1.1.1 National Pollutant Discharge Elimination System**

The NPDES was established in the CWA to regulate municipal and industrial discharges to surface Waters of the U.S. The ultimate objective of the CWA is zero pollutant discharges, but it recognizes the need for a system to regulate non-zero pollutant discharges until the zero pollutant objective is feasible. Section 402 of the CWA established the NPDES for this purpose. The NPDES regulates all pollutant discharges, particularly point source discharges, to Waters of the U.S.

Passage of the Water Quality Act (WQA) of 1987 amended the CWA to specifically include storm water discharges as a type of point source discharge and established the framework for regulating municipal and industrial storm water discharges under the NPDES program. This amendment added storm water related discharges associated with construction projects to the list of discharges that require a NPDES permit. This inclusion of storm water related discharge is why construction projects are subject to the requirements of the NPDES and must satisfy the requirements of all applicable NPDES permits.

Allowable concentrations and mass emissions of pollutants are only set at a regional level. These set concentrations and mass emissions of pollutants are specifically allowed either through site-specific NPDES permits or through other regulatory mechanisms, such as Total Maximum Daily Loads (TMDLs).

Non-point pollution sources are defined as sources originating over a wide area rather than from a definable point. Non-point pollution often enters receiving water bodies in the form of surface water runoff and is not conveyed by way of pipelines or discrete conveyances. As defined in federal regulations, non-point sources are generally exempt from the NPDES permit program requirements. However, non-point source discharges caused by general construction activities are controlled by the NPDES program.

The goal of NPDES non-point source regulations is to improve the quality of storm water discharged to receiving waters to the “maximum extent practicable” through the use of BMPs. BMPs can include the development and implementation of various practices, including structural measures (e.g., the construction of biofiltration strips/swales and detention basins), regulatory measures (e.g., local authority over drainage facility design), public policy measures (e.g., labeling of storm drain inlets as to the impacts of dumping on receiving waters), and educational measures (e.g., workshops informing the public of the impacts of household chemicals dumped into storm drains).

CWA federal regulations define “municipal separate storm sewer” to mean “a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains): (i) owned or operated by a State, city, town, borough, county... .” Pursuant to the CWA Section 402, NPDES Permits are required and issued for discharges from a Municipal Separate Storm Sewer System (MS4) serving a population of 100,000 or more for Phase I, and serving a population of 10,000 or more for Phase II. Caltrans, as the owner of an MS4, has its own Statewide NPDES Permit (See Section 2.2.2). Marin County and all of its constituent cities and towns have Phase II NPDES Permits regulating the discharge in urban runoff from small MS4s (see Section 2.3).

## **2.2 State Requirements**

Contemporary water quality regulation began in the State of California with the Dickey Act, which was passed in 1949. The Dickey Act created the RWQCBs and the State Water Quality Control Board, which was later combined with the State Water Resources

Board and became known as the State Water Resource Control Board (SWRCB). In 1962, the State of California passed the Porter-Cologne Water Quality Act, which provides the basis for contemporary water quality regulation in the state.

In the State of California, the SWRCB now administers water rights, water pollution control, and federal as well as state water quality functions throughout the state. Each of the RWQCBs is responsible for the protection of beneficial uses of water resources according to federal, state and local regulatory requirements within its jurisdiction, and each uses planning, permitting, and enforcement authorities to meet these responsibilities. In particular, the SWRCB administers statewide NPDES permits, and the RWQCBs administer local NPDES permits.

### 2.2.1 Porter-Cologne Water Quality Act

The Porter-Cologne Act significantly expanded the mandate and authority of the SWRCB and RWQCBs to regulate water quality, including the requirement of a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state.

“The Legislature further finds and declares that the health, safety and welfare of the people of the state requires that there be a statewide program for the control of the quality of all the waters of the state; the state must be prepared to exercise its full power and jurisdiction to protect the quality of waters in the state from degradation originating inside or outside the boundaries of the state; the waters of the state are increasingly influenced by inter-basin water development projects and other statewide considerations. The Legislature finds that the factors of precipitation, topography, population, recreation, agriculture, industry, and economic development vary from region to region within the state, and that the statewide program for water quality control can be most effectively administered regionally within a framework of statewide coordination and policy.” (Chapter 1, pg. 1, January 2006.)

### 2.2.2 Caltrans NPDES Permit

The Project area includes areas within the Caltrans right-of-way; thus, the Caltrans NPDES permit should be used (see Figure 3 for approximate Caltrans right-of-way). The SWRCB issued the Caltrans Statewide NPDES Storm Water Permit (Order No. 99-06-DWQ, adopted July 15, 1999) to cover all Caltrans projects and facilities in the state. In compliance with this permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The permit expired in 2004 and is currently undergoing SWRCB review for re-authorization. However, Caltrans received a memo from the SWRCB on August 4, 2004 that the existing permit continues to be effective until a new permit is issued. Caltrans continues to strictly abide by its NPDES Storm Water permit requirements.

The Caltrans SWMP describes the minimum procedures and practices that Caltrans uses to reduce the pollutants it discharges from storm drainage systems that Caltrans owns or operates. It also outlines procedures and responsibilities for protecting water quality at Caltrans facilities, including the selection and implementation of BMPs. In general, Caltrans is required to reduce pollutants in storm water discharges to the maximum extent practicable. Pollutants must be reduced using the Best Available Technology Economically Achievable (BATEA), using the Best Conventional Technology (BCT). The Caltrans permit requires Caltrans to also comply with the requirements of the Construction General Permit described in Section 2.2.3. The Project will be expected to follow the guidelines and procedures outlined in the SWMP.

### 2.2.3 Construction General NPDES Permit

In accordance with NPDES regulations to minimize the potential effects of construction runoff on receiving water quality, the State requires that any construction activity affecting 0.4 hectare (one acre) or more must obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction Activity (General Permit Order No. 99-08-DWQ). Permit applicants are required to prepare a Storm Water Pollution Prevention Plan (SWPPP) and implement BMPs to reduce construction effects on receiving water quality.

Examples of typical construction site BMPs incorporated in SWPPPs include: temporary mulching; seeding or other suitable stabilization measures to protect uncovered soils; storing materials and equipment to ensure that spills or leaks cannot enter storm drain systems or surface water; spill prevention and cleanup plan development and implementation; traps, filters, or other devices at drop inlets to prevent contaminants from entering storm drains; and barriers that minimize the amount of uncontrolled runoff that could enter drains or surface water.

### 2.2.4 San Francisco Bay Conservation and Development Commission

The Project is within San Francisco Bay Conservation and Development Commission (BCDC) jurisdiction, which includes the open water, marshes, and mudflats of the greater San Francisco Bay, and portions of most creeks, rivers, sloughs and other tributaries that flow into San Francisco Bay. Coordination with the BCDC was initiated in June 2009 and will continue during coordination with regulatory agencies and as permits are secured for the Project. BCDC jurisdiction includes Corte Madera Creek at the Project site.

### 2.2.5 Areas of Special Biological Significance

Corte Madera Creek is an area of special biological significance within the Project limits. As mentioned in Section 1.6, Corte Madera Creek contains habitat for Chinook salmon. The new pedestrian pathway would place piles in the marsh adjacent to Corte Madera Creek and place temporary fill or lay geogrid fabric to create a small staging area near ESFD. The remaining access would be provided by a temporary construction trestle. Permanent foundations would be placed for the pedestrian pathway and reinforcements may be necessary for the existing trestle bridge. The U.S. Army Corps of Engineers

(USACE) 404 permit and a 401 permit from the SFBRWQCB would be required to construct any structures in the waterway. Permits from the California Department of Fish and Game (CDFG), the U.S. Fish and Wildlife Service (USFWS) and the NOAA National Marine Fisheries Service (NOAA Fisheries Service) would also be required for the Project. A BCDC permit would also be needed because the Project lies within BCDC jurisdiction, which includes areas within 100 ft of the San Francisco Bay shoreline.

## **2.3 Regional and Local Requirements**

### **2.3.1 Marin County Stormwater Pollution Prevention Program (MCSTOPPP)**

MCSTOPPP was formed in 1993 as a joint effort between the 11 cities and towns in Marin County and is administered by the Marin County Flood Control and Water Conservation District. The SWRCB issued the MCSTOPPP NPDES permit for small MS4, also known as the Phase II General Permit, for projects and facilities within Marin County and its 11 cities and towns. The current MCSTOPPP action Plan 2010, dated May 2005, provides guidance on storm water pollution prevention and control for periods from Fiscal Year 2005-2006 through 2009-2010 and serves as part of the basis of MCSTOPPP NPDES permit.

## **3 AFFECTED ENVIRONMENT/EXISTING CONDITIONS**

### **3.1 Study Methods and Procedures**

A Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) was used to obtain information relevant to local hydrology and flooding sources. The city of Larkspur website was used to obtain information on population and land use. The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey provided the soil map and information relevant to erosion potential. Information about beneficial uses of water bodies was obtained from the SFBRWQCB Basin Plan (2007). *California's Groundwater – Bulletin 118 (2003)* was used to obtain existing groundwater resources environment information. Water quality objectives were obtained from the CWA. Manuals, design guides, and any additional sources used in the report are also listed in the Reference Section.

### **3.2 General Water Resources Setting**

#### **3.2.1 Topography**

Topographic information was obtained from the U.S. Geological Survey (USGS) and from survey data from previous Caltrans and local highway projects. Along with topographic information, the Marinmap.org website also provided detailed parcel line, city line, and community information.

The terrain of the Project site consists of flat areas along the San Francisco Bay shoreline, wetlands, hills and Corte Madera Creek. The elevation within the Project area varies from approximately 20 feet at the beginning of the Project by the Cal Park Hill Tunnel multi-use pathway then drops gradually to sea level near Corte Madera Creek.

#### **3.2.2 Soils and Geology**

A *Preliminary Foundations Report* (Parikh 2009), was prepared for CMFC Project. Geologic features were referenced from the USGS Scientific Investigation Map 2918, 2006 the subsoils are described as generally consisting of Young Bay Mud and Artificial fill. Rock outcrop, consisting mainly of Franciscan Complex Mélange, which is composed of small to large hard rocks embedded in sheared and crushed rock, were also found in the Project vicinity. The Foundation Report described the subsoils north of Sir Francis Drake Boulevard as very stiff to hard sandy lean clay up to 15 ft and underlain by dense to very dense silty/clayey sand to 36.5 ft. The subsoils south of Sir Francis Drake Boulevard encountered 5 to 10 ft of silty sand/clayey sand and 5 to 10 ft of Young Bay Mud, overlying silty sand/clayey sand to approximately 35 ft below grade. Sandstone and shale part of the Melange formation was encountered below 35 ft.

According to the NRCS Web Soil Survey, the predominant materials appearing in the surface within the Project site are mainly Xerorthents-Urban land complex (0-9% slopes),

Tocaloma-McMullin-Urban land complex (30-50% slopes), and Saurin-Bonnydoon complex, (15-30% slopes). The NRCS Web Soil Survey was also used to determine the Hydrologic Soil Groups (HSGs) for the Project area. Tocaloma-McMullin-Urban land complex and Saurin-Bonnydoon complex are in HSG C. Group C soils have characteristically moderately high runoff potential due to the slow infiltration rates when thoroughly wetted. These soils consist primarily of layers that make downward movement of water or fine textured soils difficult. These soils have a slow rate of water transmission rates (approximately 0.15-0.05 in./hr).

### 3.2.3 Erosion Potential

K factors indicate the severity of erosion capability. The ratings are shown ranging from 0.02 (not erosive) to 0.69 (highly erosive). Soils outside the Project area have K factors of 0.32. The soil within the Project area is not rated because it is mostly imported fill. Generally, the soil is more susceptible to erosion past the northern end of the Project area.

### 3.2.4 Climate and Precipitation

The climate of the Project area is typical Mediterranean, characterized by dry summers and cool, wet winters. The majority of precipitation occurs between October and May. Based on the Marin County rainfall distribution map, the mean annual rainfall depth in the Project area is 31 in. Violent thunderstorms, snowfalls, and other extreme weather conditions are rare. The mean annual temperature is about 58°F. The normal temperatures for summer and winter are 73°F and 46°F, respectively.

### 3.2.5 Regional Hydrology

The San Francisco Bay Region, defined by its jurisdiction under the SFBRWQCB, is 4,603 mi<sup>2</sup> and is characterized by its dominant feature, 1,100 mi<sup>2</sup> of San Francisco Bay Estuary, the largest estuary on the west coast of the United States. The Region also includes coastal portions of Marin and San Mateo counties, from Tomales Bay to the north to Pescadero and Butano creeks to the south.

The SFBRWQCB Basin Plan (2007) separates the San Francisco Bay Region into seven Hydrologic Planning Areas. The Project area is within the “SF Bay Central” Hydrologic Planning Area, which includes the San Francisco Bay north of the Oakland-San Francisco Bay Bridge and the eastern half of Marin County including the Ross Valley watershed (see Figure 5). The Project is in the Bay Bridges Hydrologic Unit within the San Rafael Hydrologic Area according to the California State University Office of Water Programs.

The SFBRWQCB Basin Plan also indicates that flows in the Region are highly seasonal, with more than 90 percent of annual runoff occurring during the winter rainy season between October and April. Many streams go dry during the mid- to late-summer.

### 3.2.6 Local Hydrology

The Marin County, California and Incorporated Areas FIS describes in detail hydrologic peak discharge-frequency relationships for each flooding source affecting the county.

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events with an annual probability of exceedance of 10%, 2%, 1% and 0.2% have been selected as having special significance for flood plain management. These events, termed the 10%, 2%, 1%, and 0.2% events have often also been referred to as the 10-, 50-, 100- and 500-year events, respectively. Peak discharge-drainage area relationships for Corte Madera Creek are shown in Table 1, and elevations for San Francisco Bay are shown in Table 2.

**Table 1. Summary of Discharges**

Flooding Sources	Drainage Area (mi <sup>2</sup> )	Peak Discharges (cfs)			
		10%	2%	1%	0.2%
Corte Madera Creek At U.S. Highway 101	24.7	5,500	8,000	9,000	9,700

Source: Marin County FIS

**Table 2. Summary of Stillwater Elevations**

Flooding Source and Location	Elevation (NAVD)			
	10%	2%	1%	0.2%
San Francisco Bay At City of Larkspur	8.3	8.9	9.1	9.4

Source: Marin County FIS

The peak discharges for Corte Madera Creek at the Ross Gage were also estimated by Stetson Engineers for a separate study, the *Appraisal-Level Hydraulic Engineering Study, Corte Madera Creek* (2007). The *Project Location Hydraulic Study Report* (WRECO 2009) obtained a hydraulic model conducted by the USACE and calibrated by Stetson Engineers. The hydrology in the model was updated by Stetson Engineers to reflect the storms in December 2005. The 100-year design discharge used in the model, at the Project site, is 11,023 cfs.

### 3.2.7 Climate Change and the San Francisco Bay

The report titled *Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline* (April 2009) was written by the San Francisco Bay BCDC to discuss the predicted sea level rise in the Bay due to global warming. The report estimates that global warming could result in a 16-in. sea level rise by mid-century and a 55-in. rise by the end of the century in the San Francisco Bay alone. Figure 4 shows areas that would be affected by the sea level rise. The figure shows that the majority of the Project would be affected by the mid-century and century rise; however, the extent of the inundation does not reflect any existing shoreline protection or wave activity. The report also stated that the economic value estimated for the property damage caused by the 55-in. rise in the San Francisco Bay is almost double the estimate for the sea level rise along the California Pacific Ocean coastline.

### 3.2.8 Population and Land Use

The Project site is located in the City of Larkspur. According to the City of Larkspur's website, Larkspur encompasses an area of approximately 3.27 mi<sup>2</sup> with a population of approximately 11,700. The land use in the vicinity of the Project includes commercial, office, general commercial, retail and open space; however, the majority of the land use in the area is publicly owned and non-taxable including the Sonoma Marin Area Rail Transit (SMART) right-of-way and the Larkspur Ferry Terminal. The proposed Project includes work within the Caltrans right-of-way, specifically from the multi-use pathway overcrossing landing to the existing multi-use pathway located south of East SFDB.

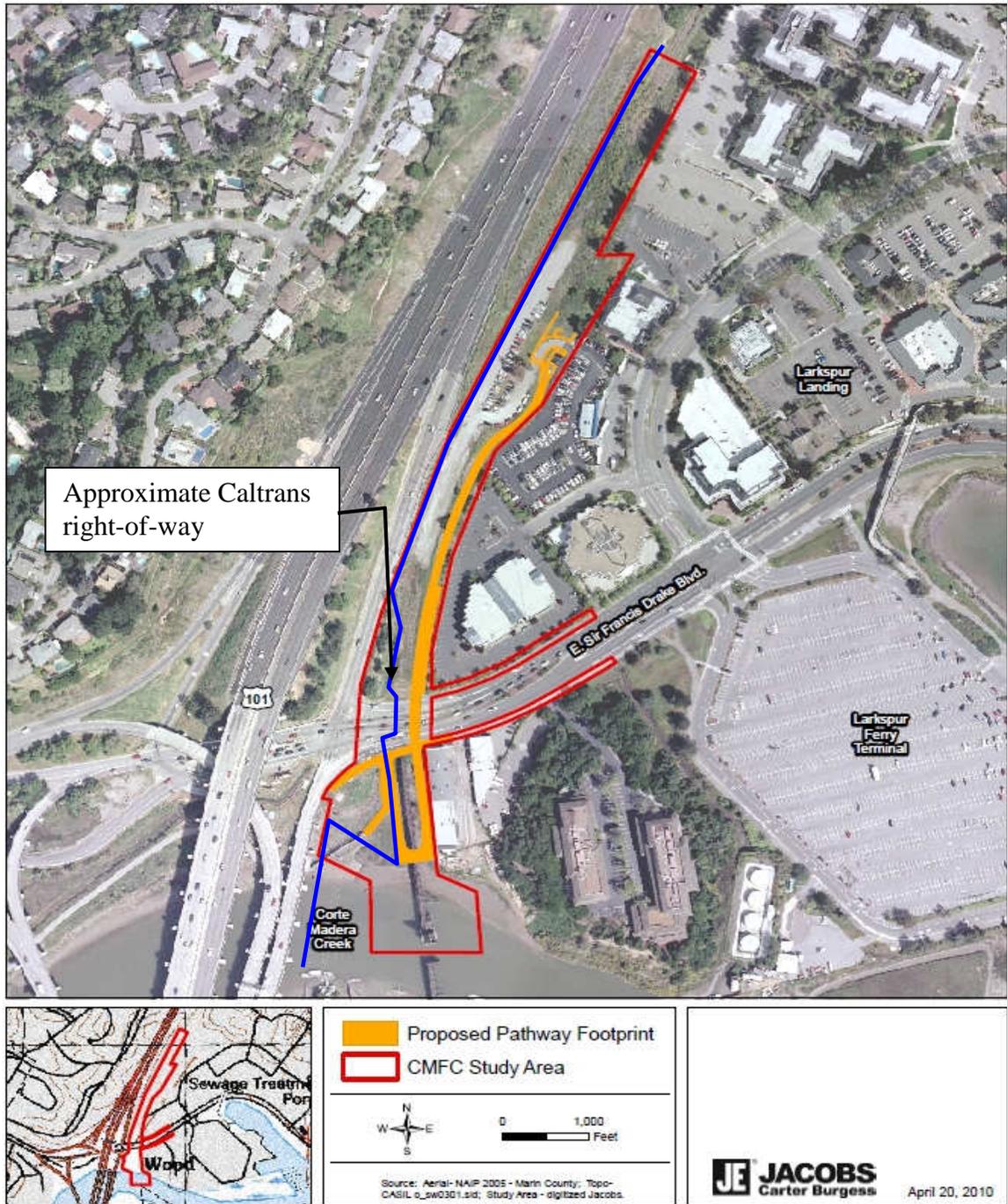


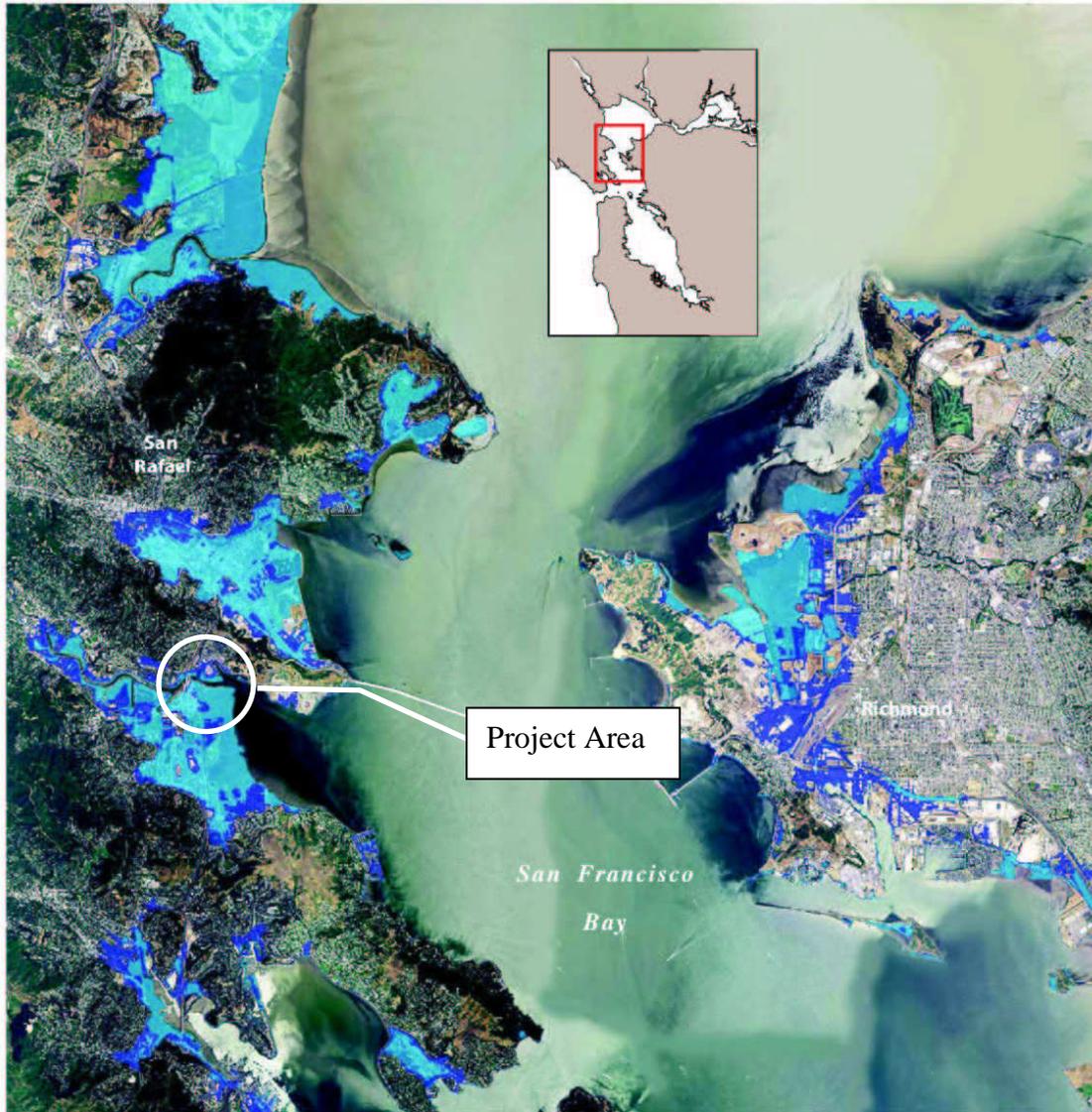
Figure 3. Caltrans Right-of-way

Source: Jacobs Engineering



## SHORELINE AREAS VULNERABLE TO SEA LEVEL RISE: CENTRAL BAY NORTH

- Area vulnerable to an approximate 16 inch sea level rise
- Area vulnerable to an approximate 55 inch sea level rise



SOURCE: Inundation data from Knowles, 2008. Additional salt pond elevation data by Siegel and Béchard, 2002. Aerial imagery is NAIP 2005 data.  
DISCLAIMER: Inundation data does not account for existing shoreline protection or wave activity. These maps are for informational purposes only. Users, by their use, agree to hold harmless and blameless the State of California and its representatives and its agents for any liability associated with its use in any form. The maps and data shall not be used to assess actual coastal hazards, insurance requirements, or property values or be used in lieu of Flood Insurance Rate Maps issued by the Federal Emergency Management Agency (FEMA).

**Figure 4. Predicted Sea Level Rise**

Source: BCDC

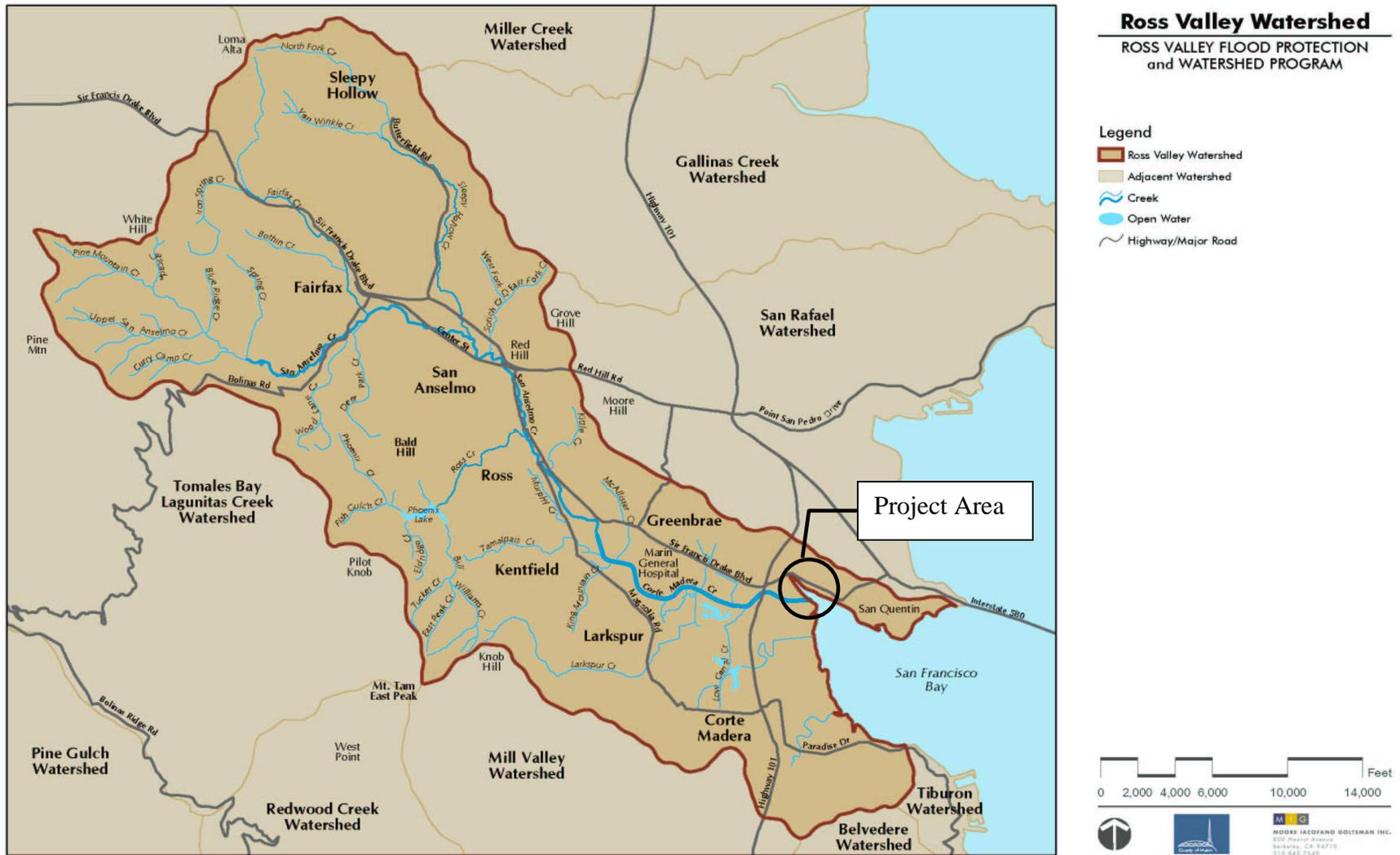


Figure 5. Ross Valley Watershed

Source: Ross Valley Watershed Flood Protection and Watershed Program

### **3.3 Existing Surface Water Resources Environment**

#### **3.3.1 Surface Streams**

Corte Madera Creek is the only water body within the Project area. Corte Madera Creek is the largest water body in Marin County, reaching from the eastern peak of Mt. Tamalpais to San Francisco Bay. The Ross Valley Watershed, which has a drainage area of 24.7 sq mi, drains to the U.S. 101 crossing (FIS 2009; see Figure 5). The Corte Madera Marsh State Ecological Reserve is an indirect receiving water body, and it drains to Central San Francisco Bay approximately 0.4 mile downstream of the proposed pathway.



**Photo 1. Corte Madera Creek**

#### **3.3.2 Beneficial Uses of Receiving Water Bodies**

The Basin Plan for the San Francisco Bay Basin includes tables of existing and potential beneficial uses for water bodies in the San Francisco Bay Region including Corte Madera Creek and San Francisco Bay Central.

San Francisco Bay Central is listed as having the following existing beneficial uses:

- Industrial service supply
- Industrial process supply
- Commercial and sport fishing
- Shellfish harvesting

- Estuary habitat
- Fish migration
- Preservation of rare and endangered species
- Fish spawning
- Wildlife habitat
- Water contact recreation
- Noncontact water recreation
- Navigation

Corte Madera Creek is listed as having the following existing and potential beneficial uses:

- Cold freshwater habitat
- Fish migration
- Preservation of rare and endangered species
- Fish spawning
- Warm freshwater habitat
- Wildlife habitat
- Water contact recreation
- Noncontact water recreation

The descriptions of these beneficial uses are listed in Appendix A.

### 3.3.3 Water Quality Objectives

The general water quality objectives established for all surface waters within the San Francisco Bay Basin, except the Pacific Ocean, address bacteria, bioaccumulation, biostimulatory substances, color, dissolved oxygen, floating material, oil and grease, population and community ecology, pH, radioactivity, salinity, sediment, settleable material, suspended material, sulfide, tastes and odors, temperature, toxicity, turbidity, and un-ionized ammonia. The water quality objectives apply to all surface waters and groundwaters in the basins of the San Francisco Bay Region, as noted. The water quality objectives are listed in Chapter 3 of the Basin Plan.

### 3.3.4 Possible Pollutants Affecting Water Quality

The CWA Section 303(d) List of Water Quality Limited Segment (303[d] List) lists the SWRCB water bodies with water quality limited segments. The waters on the 303(d) List do not meet water quality standards. The law requires that jurisdictions establish priority rankings for water bodies on the 303(d) List and develop action plans, known as Total Maximum Daily Loads (TMDLs), to improve water quality. The 303(d) List is typically revised every two years.

Corte Madera Creek and San Francisco Bay Central (a proxy for the Bay marshes) are both on the CWA Section 303(d) List. The 2006 303(d) List includes Corte Madera Creek for the pollutant diazinon, which is commonly found in chemicals used for

landscaping and is released to water bodies by irrigation of lawn and landscape areas in developed neighborhoods. Diazinon is not typically found in roadway or pathway runoff. Although Corte Madera Creek is listed as impaired by diazinon, the Project would not contribute to its impairment. Further, diazinon does not have an approved Total Maximum Daily Load (TDML), nor is it a Targeted Design Constituent (TDC) identified as a primary pollutant of concern.

The 303(d) List also includes San Francisco Bay (Central) for chlordane, DDT, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, PCBs, dioxin-like PCBs, and selenium. These pollutants are not TDCs. The Project therefore does not need to consider treatment to target these pollutants.

### 3.3.5 Flooding Sources

Detailed information on floodplains and flooding impacts for the Central Marin Ferry Connection Project is in the *Location Hydraulic Study Report* (WRECO, 2009).

According to the FIS, flooding in the area of the Project is attributed to two causes: excessive storm water runoff due to insufficient drainage conveyance from Corte Madera Creek to San Francisco Bay and high water levels within the Bay caused by high tides, runoff, and wind and wave effects. The main causes of flooding in the City of Larkspur are insufficient channel and drainage capacity during large storms and increased runoff caused by development.

### 3.3.6 Geomorphology

In 2001, Stetson Engineers prepared the report titled *Geomorphic Assessment of the Corte Madera Creek Watershed*, a “report intended to provide interested citizens as well as environmental scientists and engineers with information on historical and present watershed processes.” This report states the following regarding Corte Madera Creek geomorphology:

“Steep upland channels collect and flow though relatively steep, narrow, clayey and gravelly valley flats resting in deep folds in the terrain, and finally into broad salt marsh estuaries.

Progressive upstream channel aggradation evidently ceased in about 1964. Ongoing channel widening, and inset floodplain formation in the middle and upper portion of the alluvial channel network indicate that natural geomorphic recovery processes are ongoing but incomplete in the Corte Madera Creek watershed. However, constraints imposed by urbanization of the pre entrenchment floodplain limit the rate of natural habitat improvement both by preventing channel widening with bank protection and flood control structures, and/or aquatic and riparian habitat and habitat supporting processes and flood control should seek opportunities, where possible, to increase channel width rather than strictly prevent bed incision or bank retreat.”

### 3.3.7 Existing Surface Water Quality and Sensitivity

Surface water quality information in the Project area was obtained from the SFBRWQCB Basin Plan (2007). The primary factors contributing to water quality issues in this region are non-point source pollution and the cumulative impacts of multiple point sources such as drainage from urban areas. Although Corte Madera Creek is listed as impaired by diazinon, the Project would not contribute to its impairment.

## 3.4 Existing Groundwater Resources Environment

The California Department of Water Resources evaluated the characteristics of groundwater basins in California and summarized the results in *California's Groundwater – Bulletin 118 (2003)*. The Project is within the San Francisco Bay Hydrologic Region (HR). This HR consists of about 2.88 million ac and 28 delineated groundwater basins. Despite the intensity of urban development in this hydrologic region, groundwater use accounts for only about 5 percent (68,000 ac-ft) of the region's estimated average water supply for agricultural and urban uses. In general, groundwater quality in the region is suitable for most uses with only local impairments. Primary constituents of concern are high TDS, nitrate, boron, and organic compounds, particularly in areas near San Francisco Bay.

The Project is within the Ross Valley Groundwater Basin (2-28). This basin lies in the town of Corte Madera and City of Larkspur. It is bounded by San Francisco Bay to the east and Corte Madera Creek to the north, and it is approximately 2.8 mi<sup>2</sup>. Information pertaining to the groundwater quality in this area was not available at the time this report was written. It is anticipated that groundwater will be encountered at Project site. The Preliminary Foundation Report assumed the groundwater to be at sea level. Refer to Figure 6 for a map of the Groundwater Hydrologic Regions for the San Francisco Bay Area.

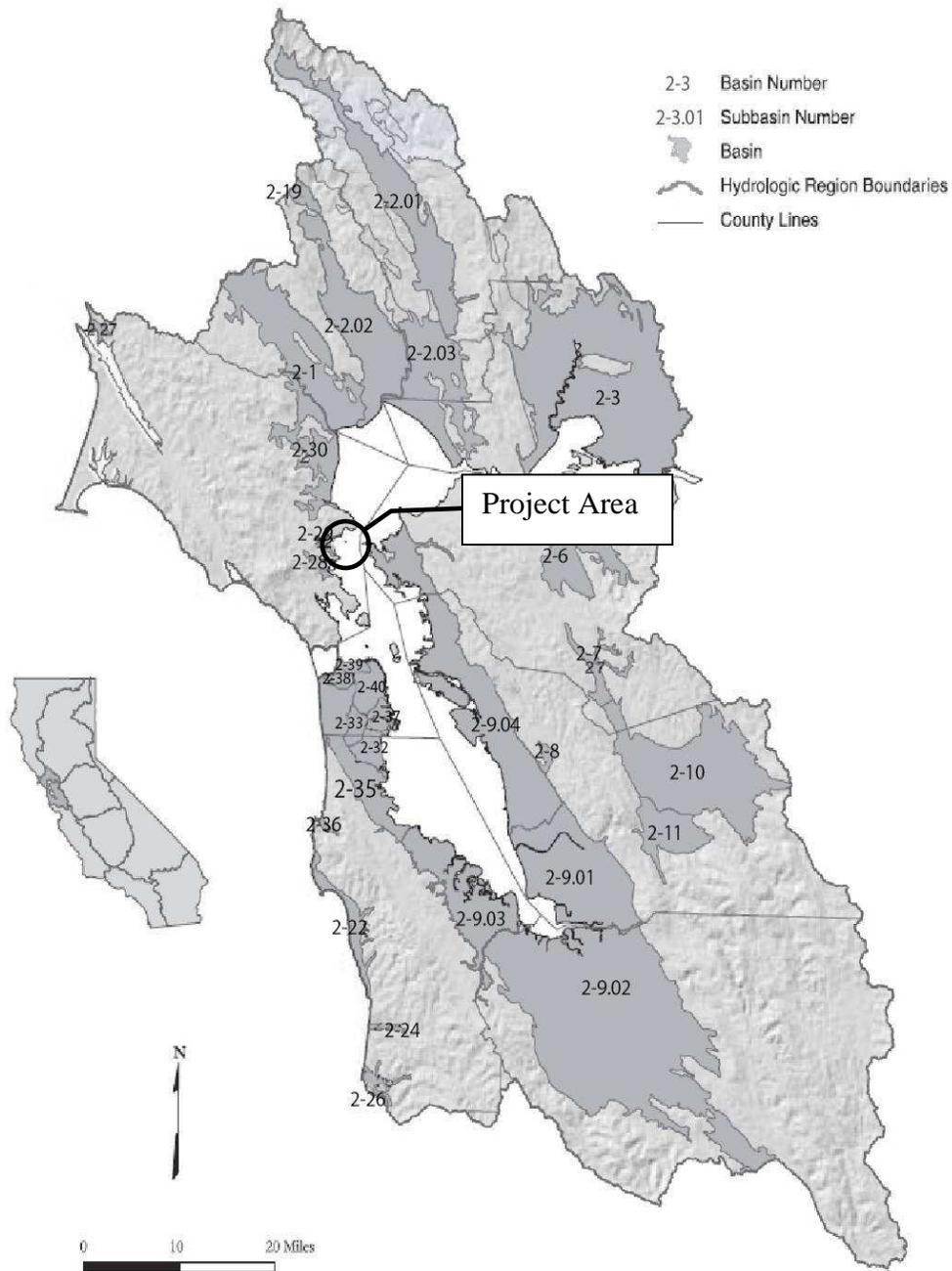
### 3.4.1 Local Area Springs and/or Wells

Not enough data exists presently to provide either an estimate of the Ross Valley Groundwater Basin's groundwater budget, storage capacity, or rates of groundwater extraction from the basin (California Department of Water Resources, 2003).

According to the Marin Municipal Water District, Marin County receives 75% its drinking water from seven reservoirs within the county; the remaining 25% comes from the Russian River in Sonoma County. Groundwater resources in the Project area do not represent a drinking water supply.

### 3.4.2 Objectives for Groundwater Quality and Local Groundwater Constituents

According to the Basin Plan (SFBRWQCB 2007), objectives for groundwater quality include monitoring and controlling concentrations of bacteria, chemical constituents, radioactivity, or substances producing taste and odor.



**Figure 6. Hydrologic Groundwater Basin Map**

Source: Department of Water Resources

## **3.5 Other Existing Water Quality Considerations**

### **3.5.1 Biotic/Aquatic Considerations**

Corte Madera Creek is identified as critical habitat for both the federally endangered Coho Salmon (*Oncorhynchus kisutch*) and the federally threatened Central California Coast Steelhead (*Oncorhynchus mykiss*). In addition to these fish species, wetlands along the banks of Corte Madera Creek provide habitat for the federally and state endangered California clapper rail (*Rallus longirostris obsoletus*), the State threatened California black rail (*Laterallus jamaicensis ssp. Coturniculus*), and the federally and state endangered salt marsh mouse (*Reithrodontomys raviventris*).

## **4 ENVIRONMENTAL CONSEQUENCES AND PROJECT IMPACTS**

### **4.1 Temporary Impacts to Storm Water**

Construction-related activities that may cause temporary impacts to storm water quality include excavation and grading activities, stockpiling of soils, loading, unloading and transport of excavated and fill materials, dewatering activities, vegetation removal, temporary fill due to construction, and alterations to the existing storm water drainage near Corte Madera Creek. During construction, there is potential for temporary impacts to occur due to increased erosion. Sediments could eventually be transported into Corte Madera Creek and storm drains with storm runoff. There is also potential for spills and leaks of lubricants and other fluids associated with vehicles and equipment during construction.

### **4.2 Temporary Impacts to Groundwater**

There is potential for groundwater to be encountered during construction, and appropriate BMPs should be implemented. Dewatering activities would be required to meet MCSTOPPP standards for water quality. Further, given the shallow depth to groundwater, accidental spills or release of pollutants could potentially impact existing groundwater quality.

### **4.3 Temporary Impacts to Water Resources**

Corte Madera Creek is the only water body within the Project site. Corte Madera Creek and San Francisco Bay are classified as Waters of the U.S. and/or Waters of the State, requiring consideration of concurrence and coordination with or permits from the USACE, CDFG, BCDC, USFWS, NOAA Fisheries Service and SFBRWQCB, prior to the start of construction.

Construction of the proposed Project has the potential to cause temporary water quality impacts to the water body. These temporary impacts can result from dewatering activities, vegetation removal, temporary fill due to construction, and alterations to the existing storm water drainage. To install the new multi-use path, the contractor will need to bring equipment to the shoreline. Access could be provided by building a geomat platform (layers of boulders, rock or crushed rock, layered with woven and unwoven geotextile fabrics). This option will need careful consideration due to the potential for settlement and shifting soil under heavy loads. Access could also be provided by constructing a wood trestle on driven piles or by access via Corte Madera Creek with shallow vessels or barges. Vehicles or equipment that would be used over the waterway would need to have drip pans and absorbent pads placed underneath. If these vehicles or equipment are expected to be idle for more than an hour, drip pans or plastic sheeting should be placed underneath. Watertight curbs or toe boards should be furnished on the platform of the trestle to contain material, debris, and tools. Materials should be secured to prevent spills or discharge into the waterway.

#### **4.4 Permanent Impacts to Storm Water**

The increase in impervious area due to Project construction would have the potential to increase the volume and velocity of storm water flow to downstream receiving water bodies and increase erosion potential. The increase in impervious area would also potentially result in increased pollutant loading to receiving water bodies as less area would be available for the infiltration of runoff. In addition, the Project would include permanent design pollution prevention BMPs and treatment BMPs.

#### **4.5 Permanent Impacts to Groundwater**

There are no anticipated permanent impacts to groundwater resulting from the Project. The minimal increase in impervious area would not result in a measurable change to groundwater quality or quantity, when compared to the overall Ross Valley watershed. Further, groundwater in the Project area is not a drinking water source; the Project would therefore have no effect on water supply.

#### **4.6 Permanent Impacts to Water Resources**

The primary potential for water quality impacts from the Project is soil erosion or suspended solids being introduced into the waterways due to additional runoff from added impervious areas. The elevated pathway would require foundations and piers placed in wetlands adjacent to Corte Madera Creek. Additional foundation reinforcement may be necessary for the existing trestle bridge.

#### **4.7 Anticipated Disturbed Soil Area and Added Impervious Area**

The Project is anticipated to create approximately 3.8 acres of disturbed soil area (DSA). The calculation of the DSA accounts for all proposed construction work including roadway excavation, pavement reconstruction, bridge foundation removal, staging areas and cut and fill slope construction.

The existing impervious area is approximately 0.6 acre; of this area, 0.25 acre would be reworked (i.e., existing roadbed would be replaced with new paving based on the proposed design). Ultimately, the Project is estimated to result in 0.55 acres of net added impervious area, which would represent a 14% increase in the total impervious area.

## **5 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

### **5.1 Avoidance and or Minimization Measures for Water Resources**

The Project would utilize appropriate BMP measures to decrease impacts to all water resources; these BMPs are discussed further in Section 5.2. The disturbed soil area (DSA) would be minimized, and existing vegetation would be maintained to the Maximum Extent Practicable (MEP). Work during the rainy season, October 15 through April 15, would also be limited to avoid impacts to storm water runoff. Barrier fencing would be established for work areas with sensitive habitats to delineate the boundary where construction activities area allowed. Disturbed areas and salt marsh habitats would be planted and/or re-seeded with native plants to re-vegetate disturbed areas. Restrictions on construction activities would be imposed to minimize impact to water quality. As mentioned in Section 4.6, the elevated pathway would require foundations and piers placed in wetlands adjacent to Corte Madera Creek and all materials placed in the wetland would be non-toxic.

### **5.2 Avoidance and or Minimization Measures for Storm Water and Groundwater**

An overall mitigation plan for water quality impacts is a condition of the MCSTOPPP NPDES permit along with the SWRCB. Details for these measures would be developed and incorporated into the Project design. With proper implementation of these measures, short-term construction-related water quality impacts and permanent water quality impacts would be avoided or minimized.

#### **5.2.1 MCSTOPPP Standard Procedures and Practices**

Potential temporary and permanent water quality impact measures would be considered for this Project under the MCSTOPPP NPDES Permit. Under the NPDES permit, the Project would incorporate BMPs to reduce to the MEP the temporary and permanent discharge or pollutants. MCSTOPPP offers guidance for appropriate BMPs using manuals developed by the SFBRWQCB and provides descriptions of BMPs for construction site planning and management, erosion and sediment control, pollution prevention and long-term BMP maintenance. The California Stormwater Quality Association BMP Handbook is another source recommended by MCSTOPPP because it provides guidance that reflects current practices, standards and knowledge gained about the effectiveness of BMPs.

#### **5.2.2 Caltrans Standard Procedures and Practices**

Measures would be considered to address potential temporary and permanent water quality impacts. An encroachment permit from Caltrans would be required for the proposed Project. According to the Caltrans NPDES permit and Construction General

Permit, BMPs must be incorporated into the contract documents of this Project to reduce, to the MEP, the discharge of pollutants, both temporarily (i.e., during construction) and permanently. The Caltrans' Storm Water Handbooks, including the *Project Planning and Design Guide* (PPDG) (Caltrans, 2007), provide guidance for evaluating projects to determine the need for and feasibility of Construction Site BMPs, Design Pollution Prevention BMPs, and Permanent Treatment BMPs. Construction Site BMPs are implemented during construction activities to reduce pollutants in storm water discharges throughout construction. Design Pollution Prevention BMPs are permanent measures to improve storm water quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces. Treatment BMPs are permanent devices that treat storm water runoff.

### 5.2.3 Project Construction

The Project would involve soil disturbance of more than one acre, a Notification of Construction (NOC) under the Marin County NPDES permit would need to be filed with the SFBRWQCB. TAM would require its contractors to implement a Storm Water Pollution Prevention Plan (SWPPP) to comply with the conditions of the Marin County NPDES permit and to address the temporary water quality impacts resulting from the construction activities associated with this Project. The SWPPP includes BMPs for erosion and sediment control.

The SWPPP required for this Project would include the following elements:

- Project Description – The project description would include maps and other information related to construction activities and potential sources of pollutants.
- Minimum Construction Control Measures – These measures may include limiting construction access routes, stabilizing areas denuded by construction, and using sediment controls and filtration.
- Erosion and Sediment Control – The SWPPP is required to contain a description of soil stabilization practices, control measures to prevent a net increase in sediment load in storm water, controls to reduce tracking sediment onto roads, and controls to reduce wind erosion. The following protective measures would be included in the Project SWPPP:
  - No discharge of pollutants from vehicle and equipment cleaning will be allowed into the storm drain or water courses.
  - Dust control measures will be implemented, including the use of water trucks and the application of tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when required.
  - Coir rolls will be installed along or at the base of slopes during construction to capture sediment.
  - Protection of graded areas from erosion will occur using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated

- staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas.
- Use of bio-filtration strips and swales to receive stormwater discharges from the adjacent roadway, or other impervious surfaces will be incorporated.
- Non-Storm Water Management – The SWPPP would include provisions to reduce and control discharges other than storm water.
- Post-Construction Storm Water Management – The SWPPP would include a list of storm water control measures that would provide ongoing (permanent) protection for water resources.
- Waste Management and Disposal – The SWPPP would include a waste management section including equipment maintenance waste, used oil, batteries, etc. All waste must be disposed of as required by state and federal law. The following protective measures would be included in the Project SWPPP:
  - Vehicle and equipment fueling and maintenance operations must be at least 100 feet from water courses, unless separated by a topographic or drainage barrier.
  - Concrete waste will not be allowed into water courses and will be collected in washouts. Water from curing operations will be properly disposed offsite.
- Maintenance, Inspection, and Repair – The SWPPP requires an ongoing program to ensure that all controls are in place and operating as designed.
- Monitoring – This provision requires documented inspections of the control measures.
- The contractor would prepare an annual report on the construction project and submit this report to the RWQCB which must certify compliance with the SWPPP.
- Training – Inspections, maintenance and repair of construction site BMPs must be performed by trained personnel.

Additional restrictions on construction activities to be implemented prior and during construction include:

- A speed limit of 15 miles per hour in unpaved areas of the Study Area will be enforced to reduce dust and excessive soil disturbance.
- Construction staging, storage, and parking areas will be located within the SMART and/or Caltrans ROW and outside of any prohibited work areas. Access routes and the number and size of staging and work areas will be limited to the minimum necessary to construct the proposed Project. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.
- All equipment will be maintained in order to prevent leaks of automotive fluids such as gasoline, oils or solvents. A Spill Response Plan will be prepared. Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in designated locations at least 100 ft from wetlands and aquatic habitats.

- Work within an inundated drainage, channel, or wetland or in-water work, will be conducted outside the Central and Northern California rainy season of October 15 through April 15.
- Construction in an inundated drainage will be conducted with coffer dams to isolate dewatered areas from active channel habitats.
- Use of herbicides will be restricted in the prohibited areas.
- To the maximum extent possible, nighttime construction will be minimized.

The Project is required to reduce pollutants in storm water discharges to the MEP. For discharges from a construction site, pollutants must be reduced using the Best Available Technology Economically Achievable (BATEA); conventional pollutants must be reduced using the Best Conventional Technology (BCT) that is economically feasible.

As mentioned in Section 1.6, Corte Madera Creek is an area of special biological significance within the Project limits. The proposed pedestrian pathway would place piles in wetlands adjacent to Corte Madera Creek, therefore mitigation measures would be proposed to minimize the impacts. Mitigation measures include: establishing boundaries for work within sensitive areas, planting/re-seeding salt marsh habitats, purchasing off-site wetland habitats and placing nontoxic structures in the streams.

Boundaries would be established for work areas within sensitive habitats. Barrier fencing would be established within the salt marsh habitat to delineate the boundary between where construction activities are allowed and prohibited. The fencing will prevent construction encroachment into the surrounding prohibited areas of the salt marsh and creek habitats. The construction specifications shall contain clear language that restricts construction-related activities, prohibits vehicle operation, material and equipment storage, and other surface-disturbing activities within the prohibited areas. In addition, hydrologic features (i.e., topographic depressions, roadside ditches, culverts, etc.) outside the Study Area would not be manipulated (i.e., re-routed, dredged, filled, graded, etc.). This will reduce potential effects to wetlands outside of the Study Area that may be hydrologically connected to wetlands within the Study Area.

The applicant will immediately plant or re-seed the salt marsh habitat along the north bank of Corte Madera Creek affected by the proposed project to re-vegetate the disturbed habitat. Following construction, the applicant will install native salt marsh plant species appropriate for the location of the disturbed area per an agency-approved Mitigation and Monitoring Plan.

To offset the impacts to the tidal salt marsh, habitat would be created, restored, or set aside in perpetuity in a ratio to be determined through coordination with the U.S. Army Corps of Engineers (USACE) and the USFWS. Alternately, mitigation credits may be purchased through a USFWS-approved mitigation bank, if available. If no mitigation bank is available, mitigation may be accomplished through support of existing or planned conservation projects within the region.

All materials placed in the stream or adjacent wetlands, such as pilings and retaining walls, shall be non-toxic. Any combination of wood, plastic, cured concrete, steel pilings or other materials used for in-channel structures shall not contain coatings or treatments or consist of substances deleterious to aquatic organisms that may leach into the surrounding environment in amounts harmful to aquatic organisms.

#### 5.2.4 List of Proposed Temporary Construction Site Best Management Practices

Potential temporary impacts to water quality can be prevented or minimized by implementing standard BMPs recommended for a particular construction activity. The selected temporary BMPs are consistent with the practices required under the NPDES General Permit for Storm Water Discharges from the State of California and are intended to achieve compliance with the requirements of the permit. These BMPs also satisfy the requirements for construction BMPs for the Marin Countywide Clean Water Program. Compliance with the requirements of the NPDES Permit reduces or avoids potentially significant construction-related impacts. Adverse impacts can occur during construction-related activities. Soil erosion, especially during heavy rainfall, can increase the suspended solids, dissolved solids, and organic pollutants in storm water runoff generated within the Project area. These conditions would likely persist until the completion of construction activities and implementation of long-term erosion control measures.

Erosion control measures can be applied to all exposed areas during construction, including the trapping of sediments within the construction area through the placing of barriers, such as silt fences, at the perimeter of downstream drainage points or through the construction of temporary detention basins. Other methods of minimizing erosion impacts include the implementation of hydromulching and/or limiting the amount and length of exposure of graded soil. Temporary erosion control and water quality measures would be defined in detail in the Erosion Control and Water Pollution Control design sheets prepared for the Project. Table 3 lists the temporary control measures that may be necessary for the Project as described in the Construction Handbook of the California Storm Water BMP Handbook and Appendix C of the Caltrans PPDG.

Work in and around Corte Madera Creek would require a temporary diversion during construction or be required as part of the permits or agreements with the previously mentioned agencies. Groundwater is assumed to be at sea level (elevation 0) based on the Preliminary Foundation Report. If excavations are deeper than the groundwater elevations, a dewatering permit may be required from the SFBRWQCB, and the contract documents must address dewatering BMP measures. Practices commonly used for dewatering operations may involve desilting basins. Sediment/desilting basins serve as a temporary basin for the purpose of temporarily detaining runoff in order to allow sediment to settle out before the runoff drains to the nearest water body or publicly owned waste water treatment facility.

Non-storm water/waste management is also essential to minimize potential for water quality impacts on a project site. Accidental spills of petroleum hydrocarbons (such as

fuels and lubricating oils), concrete wastewater, and possibly sanitary wastes are also of concern during construction activities. An accidental release of these wastes can adversely affect surface water quality, vegetation, and downstream wildlife habitat. Soil Stabilization measures would include Temporary Silt Fence, Temporary Fence (Type ESA) and Fiber Rolls. “Type ESA” fence is specifically designed to designate an area as being off limits to the Contractor while Silt Fence and Fiber Rolls are used to prevent runoff from the project from entering these areas during construction.

**Table 3. Temporary Control Measures.**

Category	Minimum Requirement(s)
Soil Stabilization Practices	Preservation of Existing Vegetation Temporary Fence (Type ESA) Hydraulic Mulch
Sediment Control Practices	Silt Fence Fiber Rolls Storm Drain Inlet Protection Sediment/Desilting Basin Sediment Trap
Tracking Control	Stabilized Construction Entrance/Exit Street Sweeping and Vacuuming
Wind Erosion Control	Wind Erosion Control
Non-Storm Water Control	Dewatering Paving and Grinding Operations Illicit Connection/Illegal Discharge Detection and Reporting Vehicle and Equipment Cleaning, Fueling, and Maintenance Pile Driving Operations Concrete Curing and Finishing Material and Equipment Use Over Water Structure Demolition/Removal Over or Adjacent to Water
Waste Management & Materials Pollution Control	Concrete Waste Management Material Delivery and Storage Material Use Solid Waste Management Spill Prevention and Control Sanitary/Septic Waste Management Stockpile Management

### 5.2.5 Permanent Pollution Prevention Design Measures

Permanent measures that control pollutant discharges are considered and implemented for all new or reconstructed facilities. These measures reduce suspended particulate loads and those pollutants associated with the particulates entering waterways. The measures would be incorporated into the final engineering design of the Project.

### 5.2.6 MCSTOPPP

The California Stormwater Quality BMP Handbook used by MCSTOPPP as a guide for the design of BMPs utilizes three basic strategies for the planning and design of water quality protection:

- 1) Reduce or eliminate of post-project runoff.
  - a) Manage Watershed Impervious Area by identifying open space and sensitive resource areas, target growth to areas that are best suited for development and plan developments that is compact to reduce the amount of impervious areas
  - b) Minimize Directly Connected Impervious Areas by limiting the overall impervious coverage and directing runoff from impervious areas to pervious areas for infiltration, retention/detention, or infiltration.
  - c) Incorporate Zero Discharge Areas – “zero discharge” implies the area generated no treatment required runoff and includes Retention/Detention Ponds, Wet Ponds, and infiltration areas
  - d) Include Self Treatment Areas such as large landscaped areas, grass/vegetated swales, turf block paving areas and the conservation of natural spaces. These areas act as their own BMP.
  - e) Consider Runoff Reduction Areas, which use surfaces with a lower coefficient runoff or “C-Factor” that may reduce the runoff from developed areas. These materials include pervious concrete, pervious asphalt, turf block, un-grouted brick, natural stone, concrete unit pavers, crushed aggregate, cobbles and wood mulch.
- 2) Control Sources of Pollutants by marking new drain inlets and posting informational signs, improving landscape planning and efficient irrigation methods, using water quality friendly building materials, and permanently protecting slopes and channels from erosion.

- 3) Treat contaminated storm water runoff before discharging it to natural water bodies.

### 5.2.7 Caltrans

The PPDG provides the following four categories when considering design pollution prevention BMPs for a Project:

- 1) Consideration of downstream effects related to potentially increased flow –
  - a) The Project would discharge into unlined channels; therefore, necessary erosion control should be applied to all ditches. Increased sediment loads may be transported to downstream waterways; therefore, permanent erosion control measures should be applied to all new or exposed slopes.

- 2) Slope/surface protection systems:
  - a) Slopes would be designed and constructed according to Caltrans and City standards; slopes shall be designed at 4:1 (H:V) or flatter when possible and no steeper than the maximum 2:1 (H:V).
  - b) Vegetated surfaces, such as temporary erosion control with permanent seeding would be applied to all disturbed and newly created slopes.
  - c) Hard surfaces, such as rock slope protection, would be placed to prevent erosion along exposed slopes.
- 3) Concentrated flow conveyance systems –
  - a) In locations where the project has the potential to create gullies and at outfalls discharging concentrated flow, the drainage design would include the following:
    - i) Properly sized ditches, berms, dikes, and/or swales
    - ii) Overside drains
    - iii) Flared end sections
    - iv) Outlet protection/velocity dissipation devices
- 4) Preservation of existing vegetation – Preserving existing vegetation is beneficial at all locations. The following general steps should be taken to preserve existing vegetation during the design phase:
  - a) Identify and delineate in contract documents all vegetation to be retained;
  - b) Provide specifications in contract documents that the Contractor shall delineate the areas to be preserved in the field prior to the start of soil-disturbing activities;
  - c) Provide specifications in contract documents that the Contractor shall minimize disturbed areas by locating temporary roadways to avoid stands of trees and shrubs and to follow existing contours to reduce cutting and filling; and
  - d) When specifying the removal of vegetation, consider provisions included in the contract documents to minimize impacts (increased exposure or wind damage) to the adjacent vegetation that would be preserved.

### 5.2.8 List of Proposed Design Pollution Prevention BMPs

Many design elements that are traditionally part of drainage and landscape design for a project are considered beneficial to pollution prevention. The drainage and landscape elements listed below can be utilized as Design Pollution Prevention BMPs for the Project. The following elements should be considered as part of Design Pollution Prevention BMPs:

#### 5.2.8.1 MCSTOPPP

- *Reduce or eliminate post-project runoff:* The Project would increase the amount of impervious area, which would result in an increase in volume of downstream flow. Erosion control would be applied to minimize erosion downstream from potentially increased discharge.
- *Control course of pollutant:* Use water quality friendly building materials such as pervious pavements and permanently protect slopes to protect channel from erosion.
- *Treat contaminated runoff:* The Project would use infiltration into the soil with the use of permeable pavement and vegetated areas.

#### 5.2.8.2 Caltrans

- *Consideration of downstream effects related to potentially increased flow:* The Project would increase the amount of impervious area, which would result in an increase in volume of downstream flow. Erosion control would be applied to minimize erosion downstream from potentially increased discharge.
- *Preservation of existing vegetation:* At all locations, preserving existing vegetation is beneficial. The Project would avoid any disturbance outside the Project study area.
- *Concentrated flow conveyance systems:* No significant impacts are anticipated to occur due to increases in flow volume or velocities.
- *Slope/Surface Protection Systems:* The Project would create or modify existing slopes. Necessary erosion control measures would be taken for work along the existing slopes. When practicable, slope stability and erosion concerns would be reduced by maintaining or matching existing slopes.

#### 5.2.9 List of Proposed Treatment BMPs

Preliminary Treatment BMPs for the Project have been selected based on MCSTOPPP guidelines, site conditions, and feasibility. The feasibility of these treatment options would need to be re-evaluated in the design phase of the Project. The design of the selected Treatment BMPs would need to follow MCSTOPPP guidelines. In general, the following list of Treatment BMPs is considered for general purpose pollutant removal: infiltration devices, biofiltration strips, wet basins, biofiltration swales, Austin sand filters, detention devices, Delaware filters, and multi-chambered treatment trains (MCTTs). Three treatment options have been proposed for the Project area. Refer to Figure 7 for possible treatment locations and the Project SWDR (WRECO 2010) for details and calculations.

##### Option 1

Biofiltration strips and swales were initially considered; however, the Project slopes have been designed as 2:1 (H:V), and the strips and swales cannot be incorporated. If 3:1 (H:V) slopes are incorporated in the area near stations 12+00 to 16+00, then the area shaded in green in Figure 7 would be the area treated by the swales. Another option is to treat storm water runoff at another location offsite, such as the adjacent parking lots, and request treatment credits for the Project.

### Option 2

Pervious pavements would be an option on the section of the pathway north of East SFDB. Pervious pavements are part of the Low Impact Development (LID) approach adopted by MCSTOPPP to comply with the storm water runoff requirements. Figure 7 shows the section (shaded in green) of the pathway where pervious pavements would be incorporated. This would reduce the need for other types BMP treatment on the Project north of East SFDB because the net additional impervious area created by the Project would be decreased due to the pervious pavement. MCSTOPPP created a Design Guide for creating pervious surfaces. The guide contains a series of matrices that determine the most appropriate design methods based on parameters of the site condition including soil type, slope, and climate. As discussed in Section 3.2.2, the soils in the area are mostly clays with slopes of 0 to 9%. The Permeable Pavement matrix is shown in Appendix C. Based on the matrix, the most compatible forms of permeable pavements for this site are concrete unit pavers and crushed aggregate. Concrete unit pavers set in sand and filled with gravel would be a good option due to their value as a walkable surface. However, there are high initial and maintenance costs associated with the concrete unit pavers. Another option for permeable pavement is crushed aggregate because it is suitable for walking, jogging, biking, and light vehicular traffic. This option would be good based on the relatively low initial and medium maintenance cost.

### Option 3

For the area south of East SFDB, infiltration devices and wet basins would not be feasible due to the shallow groundwater depth in the area. None of the runoff from the area can be discharged into the marsh without first being treated; therefore, WRECO recommends including deck drains on the bridge and elevated surfaces to collect runoff from this area shown in Figure 7 shaded in orange. A biofiltration strip or swale has been proposed to treat the runoff from the elevated pathway. There are two alternatives for the proposed location of the biofiltration strip and swale and both would require a construction easement or a R/W acquisition from Caltrans. Another concern with the possible treatment area is the existing utilities in the area. Utility depths would need to be verified and the biofiltration swale would need to be dug by hand to avoid potential utility disruption.

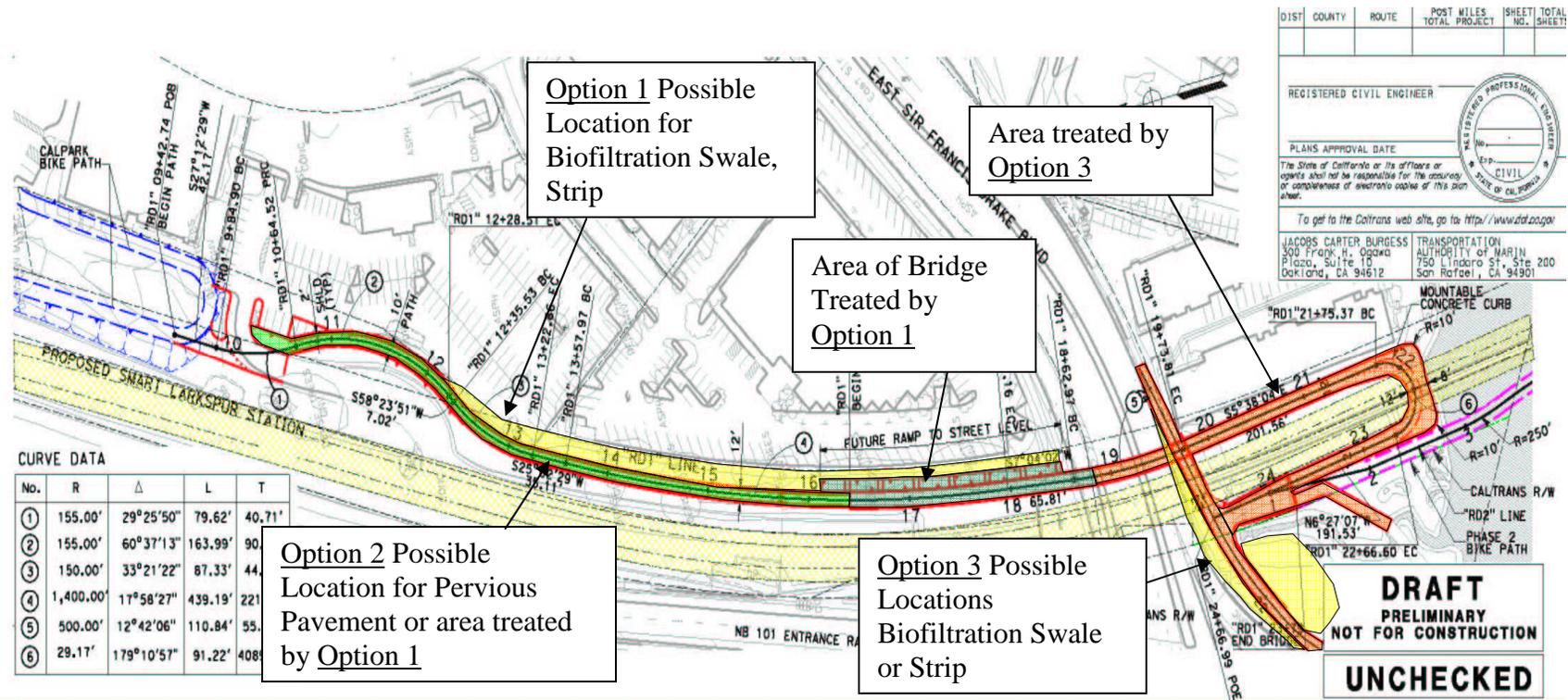


Figure 7. Proposed BMP Treatment Options

### 5.3 Water Quality Assessment of Checklists

This Water Quality Assessment Checklist is a summary of the storm water quality evaluation process presented in the California Environmental Quality Act (CEQA) Environmental Checklist Form.

The following list of questions is from the Hydrology and Water Quality Checklist from Section 8 of the CEQA Environmental Checklist Form. The possible answers are: “Potentially Significant Impact,” “Less than Significant with Mitigation Incorporated,” “Less than Significant Impact,” and “No Impact.”

Would the Project:

- a) *Violate any water quality standards or waste discharge requirements?*

**Less than Significant Impact with Mitigation Incorporated**

The primary potential for water quality impact is soil erosion or suspended solids being introduced into waterways during construction. Incorporation of construction site BMPs, erosion control measures, and treatment BMPs to the maximum extent practicable would focus on the control of sediment and suspended solids from entering the waterways. Therefore, temporary and permanent impacts to water quality are less than significant for the Project Build Alternatives with mitigation incorporated.

- b) *Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?*

**Less than Significant Impact**

Groundwater recharge is reduced when the ground is compacted or when it is covered completely (by development) and less water can seep into the soil. The additional impervious area is small in relation to the size of the groundwater basin located within the Project limits; therefore, groundwater recharge impacts from the Project would be insignificant.

Furthermore, the groundwater in the Project area is not a domestic drinking water source. Regardless, implementation of permanent treatment BMPs to the MEP, such as pervious pavements, vegetated strips/swales where slopes permits and detention devices, would promote water quality treatment before storm water would runoff within the Project limits.

- c) *Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?*

**Less Than Significant Impact**

The Project would include minor changes to the existing drainage pattern in order to accommodate treatment BMPs. However, storm water would not be redirected from its existing receiving water body. The Project would create new impervious areas that

would increase storm water flowing to receiving water bodies. However, no significant impacts are anticipated to occur due to increases in flow volume or velocities. All proposed drainage systems would be designed to accommodate the increased runoff.

d) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?*

**Less Than Significant Impact**

The existing drainage patterns would be maintained. All drainage systems within the Project area would be evaluated to determine if the system would need to be improved in order to not exacerbate flooding in the area. Flooding issues in the area and proposed mitigations for the flooding issues are described in detail in the *Location Hydraulic Study* (WRECO, 2009).

e) *Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?*

**Less than Significant Impact with Mitigation Incorporated**

The proposed Project would increase the total impervious surface within the proposed Project limits and, therefore, has the potential to increase storm water runoff volumes, peak flows and durations. However, the increase would be insignificant and would not be susceptible to hydromodification due to its tidal nature.

In compliance with Marin County NPDES requirements, treatment BMPs would be included where practicable. These BMPs would include, but would not be limited to, vegetated strips, vegetated swales, and pervious pavements at all feasible locations throughout the proposed Project area. With these mitigation measures incorporated, the impact to runoff would be less than significant.

f) *Otherwise substantially degrade water quality?*

**Less than Significant Impact with mitigation incorporated**

The Project would follow the regulations set forth in the General NPDES Permit for Construction Activities and the Marin County NPDES Permit. In these NPDES Permits, the contractor is required to submit a SWPPP with the appropriate temporary and permanent BMPs to eliminate to the MEP degradation of water quality.

## **6 PERMITS AND COORDINATION**

The Project includes work both within the SMART right-of-way and the Caltrans right-of-way and needs to comply with all relevant jurisdictional design criteria depending on where work is proposed. This includes, but is not limited to, compliance with both the Marin County and Caltrans NPDES Permits and BMP design criteria.

Because work near Corte Madera Creek is proposed, permits from the USACE, CDFG, USFWS, NOAA Fisheries Service, BCDC and SFBRWQCB may be required prior to construction activities within the stream bed and banks. Coordination with these agencies is ongoing throughout the environmental documentation and design phases of the Project.

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**Appendix A      Descriptions of Beneficial Uses**  
**(From the San Francisco Bay, Region 2, Basin Plan)**

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## **Appendix A.1 Description of Beneficial Use**

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## **BENEFICIAL USE DEFINITIONS**

The following definitions (in italics) for beneficial uses are applicable throughout the entire state. A brief description of the most important water quality requirements for each beneficial use follows each definition (in alphabetical order by abbreviation).

### **COLD FRESHWATER HABITAT (COLD)**

*Uses of water that support cold water ecosystems, including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.*

Cold freshwater habitats generally support trout and may support the anadromous salmon and steelhead fisheries as well. Cold water habitats are commonly well-oxygenated. Life within these waters is relatively intolerant to environmental stresses. Often, soft waters feed cold water habitats. These waters render fish more susceptible to toxic metals, such as copper, because of their lower buffering capacity.

### **ESTUARINE HABITAT (EST)**

*Uses of water that support estuarine ecosystems, including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds), and the propagation, sustenance, and migration of estuarine organisms.*

Estuarine habitat provides an essential and unique habitat that serves to acclimate anadromous fishes (salmon, striped bass) migrating into fresh or marine water conditions. The protection of estuarine habitat is contingent upon (1) the maintenance of adequate Delta outflow to provide mixing and salinity control; and (2) provisions to protect wildlife habitat associated with marshlands and the Bay periphery (i.e., prevention of fill activities). Estuarine habitat is generally associated with moderate seasonal fluctuations in dissolved oxygen, pH, and temperature and with a wide range in turbidity.

### **INDUSTRIAL SERVICE SUPPLY (IND)**

*Uses of water for industrial activities that do not depend primarily on water quality, including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.*

Most industrial service supplies have essentially no water quality limitations except for gross constraints, such as freedom from unusual debris.

## **FISH MIGRATION (MIGR)**

*Uses of water that support habitats necessary for migration, acclimatization between fresh water and salt water, and protection of aquatic organisms that are temporary inhabitants of waters within the region.*

The water quality provisions acceptable to cold water fish generally protect anadromous fish as well. However, particular attention must be paid to maintaining zones of passage. Any barrier to migration or free movement of migratory fish is harmful. Natural tidal movement in estuaries and unimpeded river flows are necessary to sustain migratory fish and their offspring. A water quality barrier, whether thermal, physical, or chemical, can destroy the integrity of the migration route and lead to the rapid decline of dependent fisheries.

Water quality may vary through a zone of passage as a result of natural or human-induced activities. Fresh water entering estuaries may float on the surface of the denser salt water or hug one shore as a result of density differences related to water temperature, salinity, or suspended matter.

## **INDUSTRIAL PROCESS SUPPLY (PRO)**

*Uses of water for industrial activities that depend primarily on water quality.*

Water quality requirements differ widely for the many industrial processes in use today. So many specific industrial processes exist with differing water quality requirements that no meaningful criteria can be established generally for quality of raw water supplies. Fortunately, this is not a serious shortcoming, since current water treatment technology can create desired product waters tailored for specific uses.

## **PRESERVATION OF RARE AND ENDANGERED SPECIES (RARE)**

*Uses of waters that support habitats necessary for the survival and successful maintenance of plant or animal species established under state and/or federal law as rare, threatened, or endangered.*

The water quality criteria to be achieved that would encourage development and protection of rare and endangered species should be the same as those for protection of fish and wildlife habitats generally. However, where rare or endangered species exist, special control requirements may be necessary to assure attainment and maintenance of particular quality criteria, which may vary slightly with the environmental needs of each particular species. Criteria for species using areas of special biological significance should likewise be derived from the general criteria for the habitat types involved, with special management diligence given where required.

## **WATER CONTACT RECREATION (REC-1)**

*Uses of water for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, and uses of natural hot springs.*

Water contact implies a risk of waterborne disease transmission and involves human health; accordingly, criteria required to protect this use are more stringent than those for more casual water-oriented recreation.

Excessive algal growth has reduced the value of shoreline recreation areas in some cases, particularly for swimming. Where algal growths exist in nuisance proportions, particularly bluegreen algae, all recreational water uses, including fishing, tend to suffer.

One criterion to protect the aesthetic quality of waters used for recreation from excessive algal growth is based on chlorophyll a.

## **NONCONTACT WATER RECREATION (REC-2)**

*Uses of water for recreational activities involving proximity to water, but not normally involving contact with water where water ingestion is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.*

Water quality considerations relevant to noncontact water recreation, such as hiking, camping, or boating, and those activities related to tide pool or other nature studies require protection of habitats and aesthetic features. In some cases, preservation of a natural wilderness condition is justified, particularly when nature study is a major dedicated use.

One criterion to protect the aesthetic quality of waters used for recreation from excessive algal growth is based on chlorophyll a.

## **FISH SPAWNING (SPWN)**

*Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.*

Dissolved oxygen levels in spawning areas should ideally approach saturation levels. Free movement of water is essential to maintain well-oxygenated conditions around eggs deposited in sediments. Water temperature, size distribution and organic content of

sediments, water depth, and current velocity are also important determinants of spawning area adequacy.

### **WARM FRESHWATER HABITAT (WARM)**

*Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.*

The warm freshwater habitats supporting bass, bluegill, perch, and other panfish are generally lakes and reservoirs, although some minor streams will serve this purpose where stream flow is sufficient to sustain the fishery. The habitat is also important to a variety of nonfish species, such as frogs, crayfish, and insects, which provide food for fish and small mammals. This habitat is less sensitive to environmental changes, but more diverse than the cold freshwater habitat, and natural fluctuations in temperature, dissolved oxygen, pH, and turbidity are usually greater.

### **WILDLIFE HABITAT (WILD)**

*Uses of waters that support wildlife habitats, including, but not limited to, the preservation and enhancement of vegetation and prey species used by wildlife, such as waterfowl.*

The two most important types of wildlife habitat are riparian and wetland habitats. These habitats can be threatened by development, erosion, and sedimentation, as well as by poor water quality.

The water quality requirements of wildlife pertain to the water directly ingested, the aquatic habitat itself, and the effect of water quality on the production of food materials. Waterfowl habitat is particularly sensitive to changes in water quality. Dissolved oxygen, pH, alkalinity, salinity, turbidity, settleable matter, oil, toxicants, and specific disease organisms are water quality characteristics particularly important to waterfowl habitat. Dissolved oxygen is needed in waterfowl habitats to suppress development of botulism organisms; botulism has killed millions of waterfowl. It is particularly important to maintain adequate circulation and aerobic conditions in shallow fringe areas of ponds or reservoirs where botulism has caused problems.

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## **Appendix A.2      Beneficial Uses for Project Waterbodies**

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Water Quality Study Report  
 Central Marin Ferry Connection Project  
 Larkspur, Marin County, California

COUNTY	Human Consumptive Uses							Aquatic Life Uses							Wildlife Use	Recreational Uses			
	AGR	MUN	FRESH	GW R	IND	PROJ	COMM	SHEL	COLD	EST	MAR	MIGR	RARE	SPWN	WA EM	WILD	REC-1	REC-2	NAV
<i>SAN FRANCISCO COUNTY</i>																			
Golden Gate Channel																			
San Francisco Bay																			
Central					E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Golden Gate Park																			
Lakes														E	E	E	E	E	E
<i>MARIN COUNTY</i>																			
San Rafael Creek									E						E	E	E	E	E
Corte Madera Creek									E		P	E	P	E	E	E	P	E	E
Ross Creek																			
Cascade Creek																			
San Anselmo Creek																			
Sleepy Hollow Creek																			
Phoenix Lake		E							E					E	E	E	E	E	E
Phoenix Creek																			
Bill Williams Creek																			
Richardson Bay					E		E	E	E	E	E	E	E	E	E	E	E	E	E
Arroyo Corte Madera del Presidio								E	E					E	E	P	E	E	E
Old Mill Creek									E						E		E	E	E
Coyote Creek (Marin)									E					E	E		E	E	E
<i>ALAMEDA COUNTY</i>																			
Berkeley Aquatic Park Lagoon										E	E		P		E	E	E	E	E
Lake Temescal									E					E	E	E	E	E	E

E: Existing beneficial use    L: Limited beneficial use    P: Potential beneficial use

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Water Quality Study Report  
Central Marin Ferry Connection Project  
Larkspur, Marin County, California

**Appendix B      Section 303(d) Lists**

San Francisco Regional Water Quality Control Board  
Approved June 28, 2007

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**2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS**

(Those requiring TMDLS (A), being addressed by USEPA approved TMDLS (B), and being addressed by actions other than TMDLs (C))\*

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	TMDL REQUIREMENT STATUS*	ESTIMATED SIZE AFFECTED	PROPOSED OR USEPA APPROVED TMDL COMPLETION
				Selenium		A	40 Acres	2019
				<i>Affected use is one branch of the food chain; most sensitive indicator is hatchability in nesting diving birds, significant contributions from oil refineries (control program in place) and agriculture (carried downstream by rivers); exotic species may have made food chain more susceptible to accumulation of selenium; health consumption advisory in effect for scaup and scoter (diving ducks); low TMDL priority because Individual Control Strategy in place.</i>				
				Agriculture Exotic Species Industrial Point Sources Natural Sources				
2	C	Chicken Ranch Beach	20114033	Indicator bacteria		A	0.17 Miles	2008
				<i>This listing was made by USEPA for 2006.</i>				
				Source Unknown				
2	C	China Camp Beach	20610010	Indicator bacteria		A	0.08 Miles	2019
				<i>This listing was made by USEPA for 2006.</i>				
				Source Unknown				
2	R	Corte Madera Creek	20320011	Diazinon		B	4.1 Miles	2007
				<i>This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.</i>				
				Urban Runoff/Storm Sewers				
2	R	Coyote Creek (Marin County)	20320020	Diazinon		B	2.6 Miles	2007
				<i>This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.</i>				
				Urban Runoff/Storm Sewers				
2	R	Coyote Creek (Santa Clara Co.)	20530021	Diazinon		B	55 Miles	2007
				<i>This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.</i>				
				Urban Runoff/Storm Sewers				

**2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS**

(Those requiring TMDLS (A), being addressed by USEPA approved TMDLS (B), and being addressed by actions other than TMDLS (C))\*

USEPA APPROVAL DATE: JUNE 28, 2007

REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	TMDL REQUIREMENT STATUS*	ESTIMATED SIZE AFFECTED	PROPOSED OR USEPA APPROVED TMDL COMPLETION
				Nickel <i>This listing was made by USEPA.</i>		A	41736 Acres	2019
				Source Unknown				
				PCBs (Polychlorinated biphenyls) <i>This listing covers non dioxin-like PCBs. Interim health advisory for fish; uncertainty regarding water column concentration data.</i>		A	41736 Acres	2006
				Unknown Nonpoint Source				
				PCBs (Polychlorinated biphenyls) (dioxin-like) <i>The specific dioxin like compounds are 3,4,4,5-TCB (81), 3,3,3,3-TCB (77), 3,3,4,4,5-PeCB (126), 3,3,4,4,4,4-HxCB (169), 2,3,3,4,4-PeCB (105), 2,3,4,4,5-PeCB (114), 2,3,4,4,5-PeCB (118), 2,3,4,4,5-PeCB (123), 2,3,3,4,4,5-HxCB (156), 2,3,3,4,4,5-HxCB (157), 2,3,4,4,5,5,-HxCB (167), 2,3,3,4,4,5,5-HpCB (189). This listing was made by USEPA.</i>		A	41736 Acres	2019
				Unknown Nonpoint Source				
				Selenium <i>Affected use is one branch of the food chain; most sensitive indicator is hatchability in nesting diving birds, significant contributions from oil refineries (control program in place) and agriculture (carried downstream by rivers); exotic species may have made food chain more susceptible to accumulation of selenium; health consumption advisory in effect for scaup and scoter (diving ducks); low TMDL priority because Individual Control Strategy in place. Another source is exotic species.</i>		A	41736 Acres	2019
				Agriculture Exotic Species Industrial Point Sources Natural Sources				
2	R	San Antonio Creek (Marin/Sonoma Co)	20630031	Diazinon <i>This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.</i>		B	18 Miles	2007
				Urban Runoff/Storm Sewers				
2	R	San Felipe Creek	20530041	Diazinon <i>This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.</i>		B	15 Miles	2007
				Urban Runoff/Storm Sewers				
2	B	San Francisco Bay, Central	20312010	Chlordane <i>This listing was made by USEPA.</i>		A	70992 Acres	2008
				Nonpoint Source				

**2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS**

(Those requiring TMDLS (A), being addressed by USEPA approved TMDLS (B), and being addressed by actions other than TMDLS (C))\*

USEPA APPROVAL DATE: JUNE 28, 2007

REGION TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	TMDL REQUIREMENT STATUS*	ESTIMATED SIZE AFFECTED	PROPOSED OR USEPA APPROVED TMDL COMPLETION
	DDT				A	70992 Acres	2008
	<i>This listing was made by USEPA.</i>						
			Nonpoint Source				
	Dieldrin				A	70992 Acres	2008
	<i>This listing was made by USEPA.</i>						
			Nonpoint Source				
	Dioxin Compounds (including 2,3,7,8-TCDD)				A	70992 Acres	2019
	<i>The specific compounds are 2,3,7,8-TCDD, 1,2,3,7,8-PeCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDD, and OCDD. This listing was made by USEPA.</i>						
			Atmospheric Deposition				
	Exotic Species				A	70992 Acres	2019
	<i>Disrupt natural benthos; change pollutant availability in food chain; disrupt food availability to native species.</i>						
			Ballast Water				
	Furan Compounds				A	70992 Acres	2019
	<i>The specific compounds are 2,3,7,8-TCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF. This listing was made by USEPA.</i>						
			Atmospheric Deposition				
	Mercury				A	70992 Acres	2006
	<i>Current data indicate fish consumption and wildlife consumption impacted uses: health consumption advisory in effect for multiple fish species including striped bass and shark. Major source is historic: gold mining sediments and local mercury mining. most significant ongoing source is erosion and drainage from abandoned mines; moderate to low level inputs from point sources.</i>						
			Atmospheric Deposition				
			Industrial Point Sources				
			Municipal Point Sources				
			Natural Sources				
			Nonpoint Source				
			Resource Extraction				
	PCBs (Polychlorinated biphenyls)				A	70992 Acres	2006
	<i>This listing covers non dioxin-like PCBs. Interim health advisory for fish; uncertainty regarding water column concentration data.</i>						
			Unknown Nonpoint Source				
	PCBs (Polychlorinated biphenyls) (dioxin-like)				A	70992 Acres	2019
	<i>The specific dioxin like compounds are 3,4,4,5-TCB (81), 3,3,3,3-TCB (77), 3,3,4,4,5-PeCB (126), 3,3,4,4,4,4-HxCB (169), 2,3,3,4,4-PeCB (105), 2,3,4,4,5-PeCB (114), 2,3,4,4,5-PeCB (118), 2,3,4,4,5-PeCB (123), 2,3,3,4,4,5-HxCB (156), 2,3,3,4,4,5-HxCB (157), 2,3,4,4,5,5-HxCB (167), 2,3,3,4,4,5,5-HpCB (189). This listing was made by USEPA.</i>						
			Unknown Nonpoint Source				

**2006 CWA SECTION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS**

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REGION	TYPE	NAME	CALWATER WATERSHED	POLLUTANT/STRESSOR	POTENTIAL SOURCES	TMDL REQUIREMENT STATUS*	ESTIMATED SIZE AFFECTED	PROPOSED OR USEPA APPROVED TMDL COMPLETION
				Selenium <i>Affected use is one branch of the food chain; most sensitive indicator is hatchability in nesting diving birds; significant contributions from oil refineries (control program in place) and agriculture (carried downstream by rivers); exotic species may have made food chain more susceptible to accumulation of selenium; health consumption advisory in effect for scaup and scoter (diving ducks); low TMDL priority because Individual Control Strategy in place.</i>	Agriculture Exotic Species Industrial Point Sources Natural Sources	A	70992 Acres	2019
2	B	San Francisco Bay, Lower	20410010	Chlordane <i>This listing was made by USEPA.</i>	Nonpoint Source	A	92274 Acres	2008
				DDT <i>This listing was made by USEPA.</i>	Nonpoint Source	A	92274 Acres	2008
				Dieldrin <i>This listing was made by USEPA.</i>	Nonpoint Source	A	92274 Acres	2008
				Dioxin Compounds (including 2,3,7,8-TCDD) <i>The specific compounds are 2,3,7,8-TCDD, 1,2,3,7,8-PeCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDD, and OCDD. This listing was made by USEPA.</i>	Atmospheric Deposition	A	92274 Acres	2019
				Exotic Species <i>Disrupt natural benthos; change pollutant availability in food chain; disrupt food availability to native species.</i>	Ballast Water	A	92274 Acres	2019
				Furan Compounds <i>The specific compounds are 2,3,7,8-TCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF. This listing was made by USEPA.</i>	Atmospheric Deposition	A	92274 Acres	2019

## **Appendix C    Permeable Pavement Matrix**

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**CONDENSED PLANNING & DESIGN GUIDE FOR  
 SURFACE WATER POLLUTION CONTROL PLANNING  
 AND PERMANENT BEST MANAGEMENT PRACTICES**

*Creating pervious surfaces for new development and redevelopment*

STRUCTURE TYPE: <b>PERMEABLE PAVEMENTS</b>		DESIGN METHOD								
		<input type="checkbox"/> – not good <input checked="" type="checkbox"/> – acceptable <input checked="" type="checkbox"/> – most desired								
		Conventional Asphalt/Concrete	Pervious Concrete	Porous Asphalt	Turf Block	Brick	Natural Stone	Concrete Unit Pavers	Crushed Aggregate	Cobbles
PARAMETER	SITE CONDITION									
SOIL TYPE	Clay	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Loam	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Sandy	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Shallow Bedrock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SLOPE	0% to 3%	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	4% to 7%	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	8% to 12%	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	>12%	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIMATE	NE County (Novato area)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	NW County (Tomales area)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	SE County (San Rafael to Sausalito areas)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	SW County (Woodacre to Point Reyes areas)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PROXIMITY TO WATER/STORMDRAIN	>1,000 ft (usually rural areas)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	500 ft to 1,000 ft (usually rural, some urban areas)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	100 ft to 500 ft (usually urban, some rural areas)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	50 ft to 100 ft (usually urban areas)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
COST H High M Moderate L Low	Initial	M	H	H	M	H	H	H	L	L
	Maintenance	L	H	H	H	M	M	M	M	M
Effectiveness For Reducing Runoff		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Durability/Life Span		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
"Start at the Source" 1999 Reference-Book Page Number(s)		N/A	47, 101	48, 49 102	50, 104	50, 105	51, 106	51, 52 107	52, 53 108	53, 109

TAM

Transportation Authority of Marin  
Central Marin Ferry Connection  
Marin County, California  
Phase 1

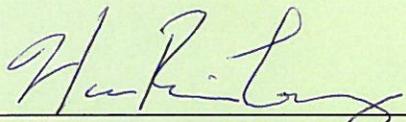
LOCATION HYDRAULIC STUDY REPORT

Version 4, April 2010

TAM Project No.: C-FY05/06-007

Jacobs Carter Burgess Project No.: CB701729

SUBMITTED BY:

  
Han-Bin Liang - WRECO

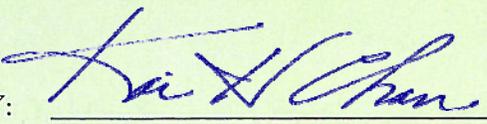
4/23/2010  
Date

REVIEWED BY:

  
Lauren Abom - Jacobs  
Senior Environmental Planner

4/26/2010  
Date

APPROVED BY:

  
Kai Chan - Jacobs  
Transportation Program Manager

4/26/2010  
Date

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## Executive Summary

The Transportation Authority of Marin (TAM) proposes the Central Marin Ferry Connection Project (CMFC), which will create a new multi-use pathway intended to further promote non-motorized commute alternatives and enhance recreational travel within the city of Larkspur in Marin County, California. TAM plans to construct the CMFC in two phases. Phase I of the CMFC, and the scope of this proposed project, would construct a multi-use pathway adjacent to the east side of U.S. Highway 101 (U.S. 101) that would include an overcrossing above Sir Francis Drake Boulevard. This report will refer to Phase 1 of the project as the “Project”. The proposed Project is of vital importance to central Marin County, as it would provide safe, direct, and convenient pedestrian/bicycle access between local transit facilities such as the future Sonoma Marin Area Rail Transit (SMART) Larkspur station and the existing Larkspur Ferry Terminal, as well as access to schools, business centers, and residential communities.

The Project has one direct receiving water body: Corte Madera Creek. The Corte Madera Marsh State Ecological Reserve is an indirect receiving water body, and it drains to Central San Francisco Bay approximately 0.4 mile downstream of the proposed pathway. Corte Madera Creek is tidally influenced and is considered a navigable water of the United States. However, the portion of the pathway that would be constructed over Corte Madera Creek would not be within the main channel. The flow in this area is shallow compared to the main channel. Boats would most likely not travel in this area.

The portion of the Project that would be constructed over Corte Madera Creek, south of Sir Francis Drake Boulevard, would be within a flood zone that is subject to inundation by the 100-year flood, as determined by the Federal Emergency Management Agency (FEMA). The rest of the pathway would be within a flood zone that is subject to inundation by the 500-year flood, or less than one foot of flooding during the 100-year flood (Zone X). See Figure 4. According to FEMA’s Flood Insurance Study (FIS), the 1% annual chance flood within the Project area is caused by tidal flooding and not by capacity issues in Corte Madera Creek (Zone VE).

Floodplain impacts from the Project would be due to the construction of the pathway, which would include fill in the floodplains with piers and abutments in the floodplains, and additional impervious areas. The construction of the pathway on the north bank of Corte Madera Creek is not anticipated to increase any risk of flooding because the flooding in the area is primarily due to tidal influences. In addition, the amount of impervious area that the proposed pathway would add is significantly less than the overall area of the Corte Madera Creek watershed as well as the San Francisco Bay watershed. Based on preliminary calculations, it was determined that this proposed pathway would have no significant effect on the water surface elevation and flow velocities.

Stetson Engineers provided a hydraulic and hydrologic base model, which was originally prepared by the U.S. Army Corps of Engineers (USACE). The pathway design plan was provide by Jacobs. Water surface elevations were estimated for the 100- and 500-year design discharges for the existing and proposed conditions. The 100-year water surface elevation was estimated as 9.34 ft (NAVD 88) for existing and 9.30 ft (NAVD 88) for proposed conditions. The 500-year water surface elevation was estimated as 9.64 ft (NAVD 88) for existing and 9.60 ft (NAVD 88) for proposed conditions.

The scour analysis was conducted using the methodology outlined in Hydraulic Engineering Circular 18 by the Federal Highway Administration. Based on the hydraulic analysis, there would be 6 piers submerged under the 100- and 500-year design discharge conditions. The total estimated scour depth at the piers varies between 5.37 ft and 8.41 ft for the 100-year design discharge and varies between 5.60 ft and 8.53 ft for the 500-year design discharge. The potential for total scour should be considered in setting pier foundation depths. The foundation of the piers should be below the estimated scour depth to minimize structural damage and/or undermining.

The natural and beneficial uses for Corte Madera Creek are fish, wildlife, and outdoor recreation. The Corte Madera Marsh State Ecological Reserve is an environmentally sensitive area (ESA), but it is not a direct receiving water body for the Project. It is not anticipated that the Project would pose a threat to natural and beneficial floodplain values.

Mitigation measures are proposed to minimize potential impacts to the floodplains and natural and beneficial floodplains. Mitigation measures that are proposed to reduce potential impacts to the floodplains include: limiting work in the channel between April 16 and October 14 (outside of the rainy season), removing materials that were used to maintain and divert water, and disposing of any excess soil. This will help to restore flows to the creek following the completion of construction. Mitigation measures are also proposed to minimize potential impacts to natural and beneficial floodplain values. The boundary for work area within ESAs will be established with the use of barrier fencing, which will reduce potential effects to wetlands outside of the study area that may be hydrologically connected to wetlands within the study area. A Stormwater Pollution Prevention Plan (SWPPP) and erosion control BMPs will be developed to minimize wind or water-related erosion. Any soil areas disturbed during construction would be planted or re-seeded to stabilize slopes against erosion. Salt marsh habitat affected by the Project would also be planted or re-seeded. Any impacts to the salt marsh would be offset with the creation or restoration of new wetland habitat.

## Acronyms

BMP	Best Management Practice
Caltrans	California Department of Transportation
CMFC	Central Marin Ferry Connection
cfs	cubic feet per second
CSU	Colorado State University
CWA	Clean Water Act
ESA	Environmentally Sensitive Area
FEMA	Federal Emergency Management Agency
ft	feet
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
HEC	Hydraulic Engineering Circular
HEC-RAS	Hydrologic Engineering Center River Analysis System
lb	pound
mi	mile
mm	millimeter
NAVD	North American Vertical Datum
NGVD	National Geodetic Vertical Datum
PM	Post Mile
RWQCB	Regional Water Quality Control Board
SFDB	Sir Francis Drake Boulevard
SMART	Sonoma Marin Area Rail Transit
SWPPP	Stormwater Pollution Prevention Plan
TAM	Transportation Authority of Marin
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey

# 1 GENERAL DESCRIPTION

## 1.1 Project Description

The Transportation Authority of Marin (TAM) is proposing to construct a new multi-use pathway intended to further promote non-motorized commute alternatives and enhanced recreational travel within the City of Larkspur in Marin County, California. TAM plans to construct the CMFC in two phases. Phase I of the CMFC, and the scope of this proposed project, would construct a multi-use pathway adjacent to the east side of U.S. 101 from post mile (PM) 14.7 to PM 15.3 that would include an overcrossing above East Sir Francis Drake Boulevard (SFDB) and connect to the existing multi-use pathway located south of SFDB. Phase I would connect to the southern limit of the Cal Park Hill Tunnel Rehabilitation and Path Project to the north, which is currently under construction. Phase II of the proposed project would extend the Phase I multi-use pathway to the south along the east side of U.S. 101 to Wornum Drive, and it may include a new overcrossing above Corte Madera Creek and provide access to the Greenbrae Boardwalk. Once completed, the entire Central Marin Ferry Connection (CMFC) project (i.e., Phases I and II) would provide a continuous multi-use pathway from the Cal Park Hill Tunnel and the future Sonoma Marin Area Rail Transit (SMART) Larkspur Station in the north to Wornum Drive in the south.

Phases I and II of the proposed project have independent utility with respect to each other because each would serve their own purpose and would occur regardless of whether the other phase was to occur. The independent utility analysis does not include the Cal Park Hill Tunnel Rehabilitation and Path Project because it is under construction and constitutes an existing condition.

See Figure 1, Figure 2, and Figure 3 for location and vicinity maps of the Project area and Project limits.

This report will refer to Phase 1 of the project as the “Project”.

## 1.2 Project History

The County of Marin identified the need to improve the U.S. Highway 101 corridor from the Tamalpais Drive interchange in the Town of Corte Madera to the SFDB interchange in the City of Larkspur (i.e., Greenbrae Corridor) as early as 1999. The need for improving the corridor was recognized as a high priority at the regional planning level and in 2004, Regional Measure 2 was approved, which provided funds to further develop the improvements. In coordination with Caltrans, TAM engaged the public in a series of public workshops to identify public concerns and develop several alternatives using context sensitive design principles to integrate stakeholder input into the project development process. This included considering the physical setting as well as addressing community values as part of the public outreach process. In addition to identifying motorized transportation alternatives throughout the corridor, non-motorized commute alternatives for the U.S. 101/SFDB interchange were developed, which

included the improvements described in this proposed Project. The U.S. 101/SFDB interchange serves a critical role in the Marin County multimodal transportation network because it serves freeway and local traffic, access to cities east and west of U.S. 101, the Larkspur Ferry Terminal, the Marin Airporter, Larkspur Landing, and business and commercial developments along Corte Madera Creek.

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 Marin County, California

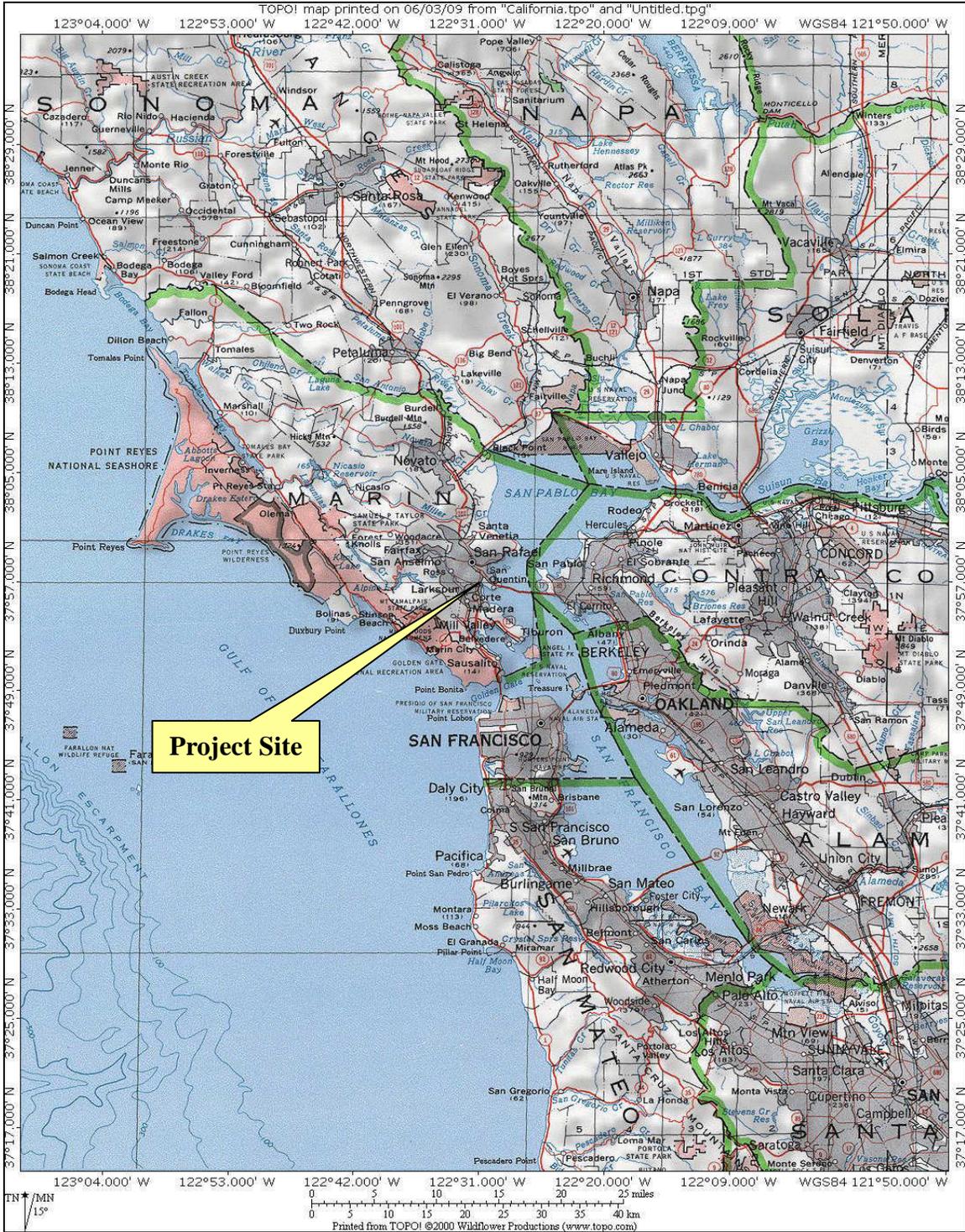


Figure 1. Location Map

Source: United States Geological Survey (USGS)



Figure 2. Aerial Photo of Project Vicinity

Source: Jacobs Engineering

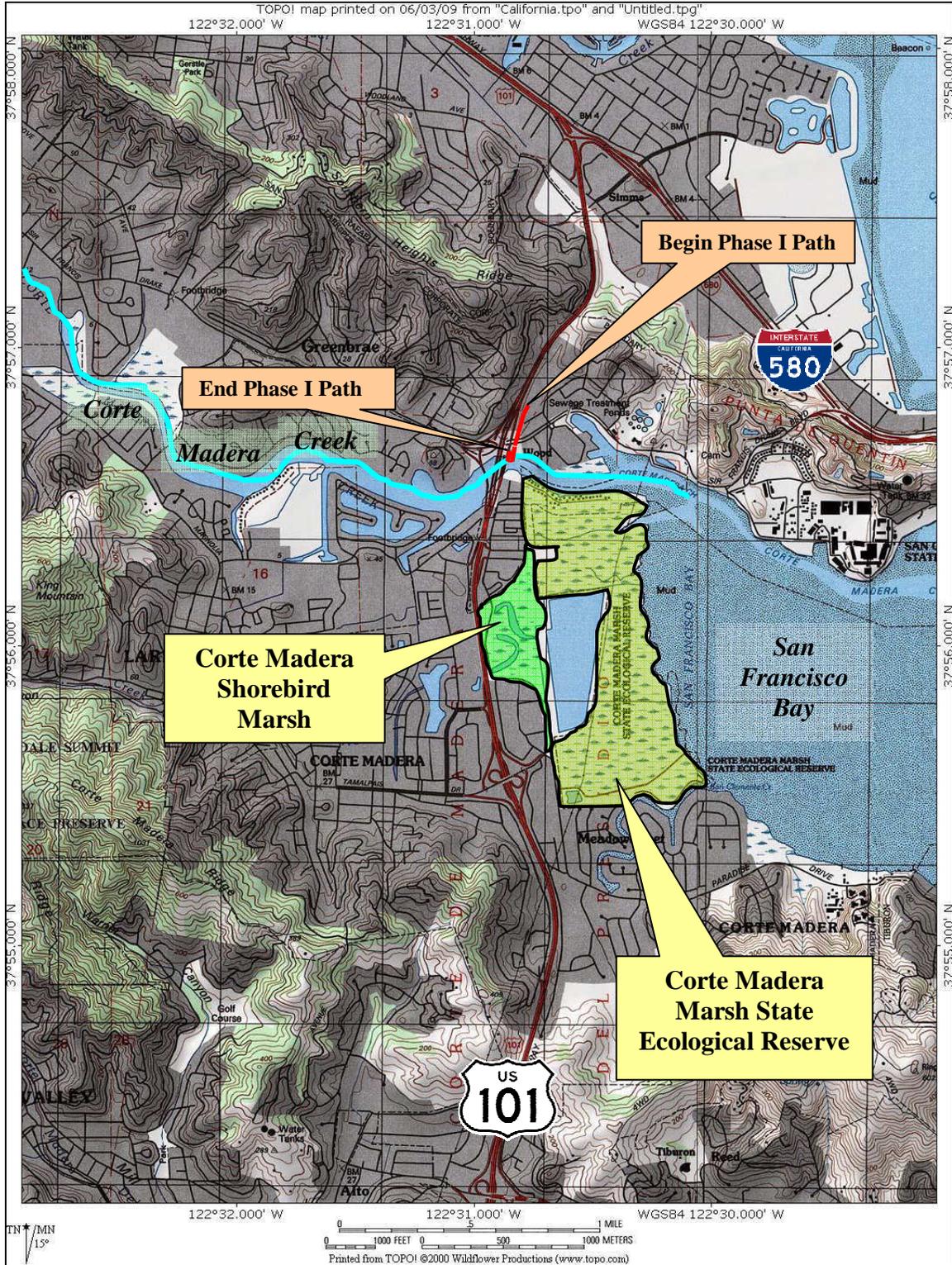


Figure 3. Vicinity Map

Source: USGS

### **1.3 Project Need**

Currently, north/south non-motorized travel is difficult at the U.S. 101/SFDB interchange because SFDB serves as a physical barrier between the Cal Park Hill Tunnel Rehabilitation and Path Project, located north of SFDB, and the multi-use pathway, located south of SFDB. Access to the multi-use pathway from the north side of SFDB requires travelers to cross the roadway at Larkspur Landing Circle, which is located approximately 800 feet to the east. Also, Corte Madera Creek and the adjacent salt marsh provide a unique habitat viewing area opportunity; however, access to points from which to view the creek and salt marsh are limited.

### **1.4 Project Purpose**

The purpose of this proposed Project would be to improve public access and connectivity for non-motorized uses by constructing a new SFDB overcrossing east of the U.S. 101/SFDB interchange. This proposed Project would also improve the opportunities to observe the Corte Madera Creek salt marsh area, by constructing an elevated path along the north bank of Corte Madera Creek. This proposed Project is of importance to central Marin County because it would provide safe, direct, and convenient non-motorized access between local transit facilities including the future SMART Larkspur station and the existing Larkspur Ferry Terminal, as well as access to schools, business centers, and residential communities.

### **1.5 Phase I Project Description**

The proposed Project would include the following construction activities for Phase I:

- Conduct a geotechnical survey
- Construct a new multi-use pathway that extends from the existing Cal Park Hill Tunnel Rehabilitation and Path Project to East SFDB
- Construct a new multi-use pathway overcrossing structure and approach ramps at East SFDB
- Construct a new access ramp from the sidewalk on the north side of East SFDB to the new overcrossing
- Construct an approach ramp for the multi-use path south of East SFDB with viewing areas above the salt marsh area and Corte Madera Creek
- Construct a new access ramp that conforms to the existing multi-use paths and repave a portion of the existing multi-use pathway south of East SFDB from the U.S. 101 northbound off-ramp structure to the Larkspur Ferry Terminal entrance
- Construct retaining walls at various locations along the multi-use path
- Construct new sidewalks, curbs, and gutters along East SFDB
- Install signage, striping, lighting, screening, handrails, fencing, landscaping, truncated domes and/or bollards

- Construct storm water swales and detention basins
- Remove or retrofit all or a portion of the existing railroad trestle
- Relocate and protect existing utilities
- Construct temporary access areas within the salt marsh and Corte Madera Creek

## 1.6 Creek, Stream, and River Crossings

Corte Madera Creek is the only water body that is within the proposed Project limits. It is a major, natural waterway in Marin County, reaching from the San Francisco Bay to the town of Fairfax. The Ross Valley Watershed, which has a drainage area of 24.7 sq mi, drains to the U.S. 101 crossing via Corte Madera Creek, according to the FEMA Flood FIS (2009). To the east of U.S. 101 (southeast of the Wornum Drive-Old Redwood Highway intersection) lies the Corte Madera Shorebird Marsh, part of the Corte Madera State Ecological Reserve. This tidal marshland is an ESA that helps with flood control as well as providing wildlife habitat.

## 1.7 Geographical References

The following are the geographical references that were used for this report:

- USGS Topographic CD-ROM
- FEMA FIS, City of Larkspur, California.
- FEMA Flood Insurance Rate Maps (FIRMs):
  - Town of Corte Madera, California, Marin County (Panel 065023 0001 B)
  - City of Larkspur, California, Marin County (Panel 065040 0001 B)
  - Marin County, California, (Unincorporated Areas) (Panel 060173 0434 A)
- Google Earth

The reference datum for all vertical elevations in the report is the NAVD88.

## 1.8 Traffic Interruptions for Base Flood (Q<sub>100</sub>)

According to the FEMA FIRMs for Marin County, the northern portion of the Project, north of East SFDB, would be located in Zone X, which means that it is susceptible to flooding during the 0.2% chance flood (500-year flood) or less than one foot of flooding during the 1% chance flood (100-year flood). See Figure 4. The southern portion of the Project, south of East SFDB would be located in Zone VE, which is a coastal area with a 1% or greater chance of flooding (100-year flood), with a water surface elevation of 9.1 ft (NAVD88), as shown in Figure 4. This elevation is based on the frequency of occurrence of high tides in the San Francisco Bay. The elevation reflects stillwater elevations due to

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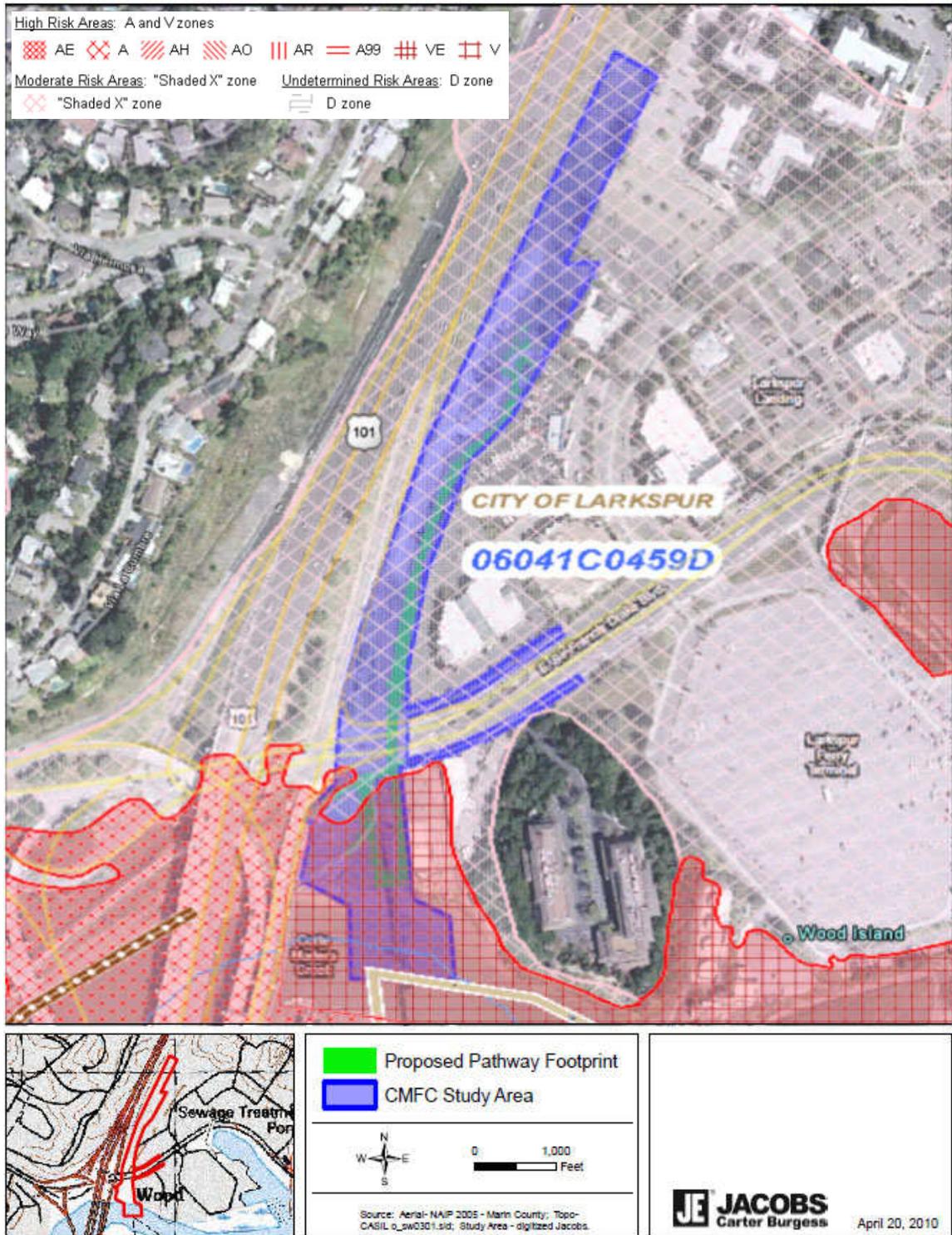


Figure 4. Aerial View and Floodplain Overlay

Source: FEMA

tidal and wind setup effects but does not include contributions from wave action, such as wave runup (FEMA 2009). The stillwater elevation is the maximum storm-induced water surface elevation. Wave runup is the superelevation of the water due to waves alone.

For the portion of the path that would be within Zone VE, the lowest deck elevation of the new pathway is 13.3 ft (NAVD88). Because this elevation is higher than the stillwater elevation, the bridge would not experience traffic interruptions due to the base flood.

For the portion of the path that would be within Zone X, the majority of the path would be higher than one foot above the existing grade and would not be expected to experience flooding. However, near the conform area, at the northern end of the Project, the proposed profile of the path would be at-grade and would be susceptible to flooding.

## **2 HYDROLOGIC AND HYDRAULIC DATA**

The FEMA FIS report for the city of Larkspur and the FIRMs for the city of Larkspur, the town of Corte Madera, and the unincorporated areas of Marin County were reviewed in order to determine the relevant hydrologic and hydraulic data. The information gathered from these sources is discussed in the sections below.

FEMA performed a detailed analysis on Corte Madera Creek from San Francisco Bay through the city of Larkspur's corporate limit. In addition, FEMA reviewed the USACE's work on the high-tide frequencies in San Francisco Bay.

Peak discharges for Corte Madera Creek at the Ross Gage were also estimated by Stetson Engineers for a separate study, the *Appraisal-Level Hydraulic Engineering Study, Corte Madera Creek* (2007). These design discharges are discussed in Section 2.3 of this report.

### **2.1 Map of Floodplain**

The FIRM for Marin County, California and Incorporated Areas (2009) shows that the southern portion of the Project would be located in Zone VE with a water surface elevation of 9.1 ft (NAVD88). Zone VE is a coastal high hazard zone where wave action and/or high-velocity water can cause structural damage during the base flood. This elevation is based on the frequency of occurrence of high tides in the San Francisco Bay. The elevation reflects stillwater elevations due to tidal and wind setup effects but does not include contributions from wave action, such as wave runup (FEMA 2009). The stillwater elevation is the maximum storm-induced water surface elevation. Wave runup is the superelevation of the water due to waves alone. The FIRM covering the Project area is included in Appendix B.

Most of the floodplain in the Project vicinity is urbanized. However, south of the Project is the Corte Madera Creek State Ecological Reserve. This tidal marshland is an ESA that provides flood control as well as wildlife habitat.

### **2.2 Description of Flood Sources**

The Project lies within the Marin County Flood Control and Water Conservation District Flood Zone 9 (Zone 9). In January of 2006, the Marin County Department of Public Works launched a special program for Zone 9 called the Ross Valley Flood Protection and Watershed Program. The program's goals are to create a "comprehensive strategy for the entire Ross (Valley) Watershed...to find solutions to flooding, restore creeks, and enhance wildlife habitat" (Ross Valley Flood Protection and Watershed Program 2009). (See Figure 5).

According to the FEMA FIS (2009), significant flooding in the nearby town of Corte Madera occurs where historical urban development replaced marsh and tidal areas with paved streets and parking lots and residential and commercial buildings, particularly in

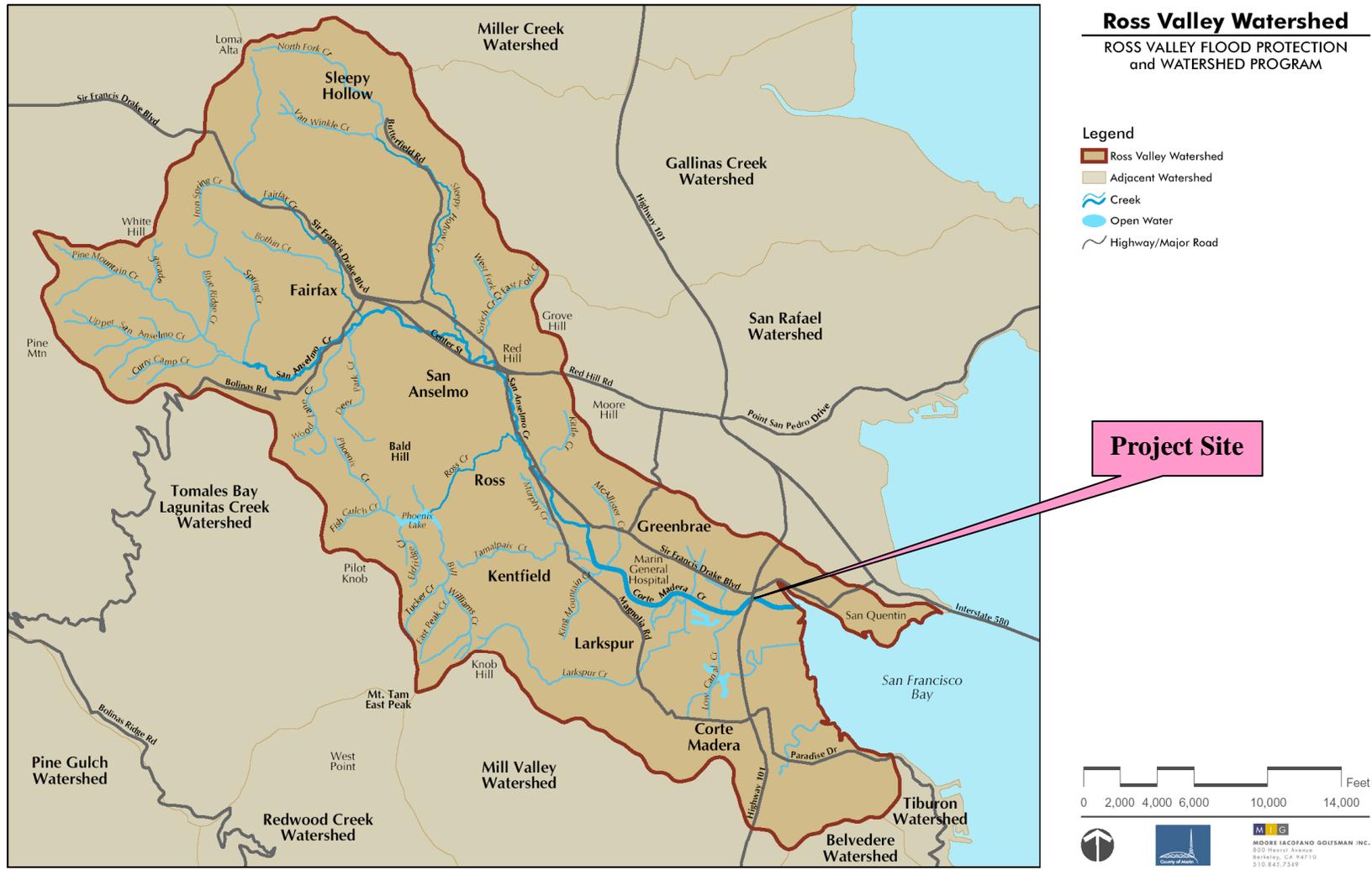


Figure 5. Ross Valley Watershed

Source: Ross Valley Watershed website

the areas north of Paradise Drive and east of Madera Gardens (see Figure 5). Flooding in this region is attributed to one of two sources, either excessive storm water runoff caused by insufficient drainage conveyance from Corte Madera Creek to San Francisco Bay or high water levels within the bay caused by high tides, runoff, and wind and wave effects. According to the FIS, a 1% chance annual exceedance tide will cause more severe flooding than a 1% chance annual exceedance flow (100-year flood) in Corte Madera Creek; therefore, the flooding in the Project area is assumed to be due primarily to tidal flooding from San Francisco Bay and not due to insufficient drainage conveyance.

Historic flood events were documented in the FEMA FIS report for Larkspur. Four floods were described as resulting in significant flood damage. These four floods occurred in December 1955, April 1958, January 1973, and January 1982. During the 1955 and 1982 floods, the area was designated a disaster area and received federal aid. Many streets were flooded and residents had to be evacuated. During the 1982 flood, most of the damage and loss of life occurred due to mudslides, unlike the previous three floods, which were caused by extreme precipitation.

## 2.3 Estimating Design Discharge

### 2.3.1 FEMA FIS

At the U.S. 101 bridge, Corte Madera Creek drains an area of 24.7 mi<sup>2</sup> and the peak discharge for the 100-year base flood is 9,000 cfs. This peak flow was estimated using a basin transfer of gage data and was based on the USGS gaging station in the town of Ross. FEMA obtained flow information from the gaging station in the town of Ross and compared the drainage areas between the two sites: at the town of Ross and at U.S. 101. The discharge was estimated by adjusting the site by the drainage area ratio. The water surface elevation of Corte Madera Creek at its confluence with San Francisco Bay is based on the mean higher-high water level of the bay, 5.69 ft NAVD88. The Manning's roughness value, *n*, used in the FIS for the Corte Madera Creek, ranged from 0.015 to 0.055 for the main channel and from 0.062 to 0.200 for the overbank areas.

### 2.3.2 USACE

Peak discharges for Corte Madera Creek at the Ross Gage were also estimated by Stetson Engineers for a separate study, the *Appraisal-Level Hydraulic Engineering Study, Corte Madera Creek* (2007).

A hydraulic model was provided by Stetson Engineers, which included an analysis conducted by the USACE and calibrated by Stetson Engineers. The hydrology in the model was updated by Stetson Engineers to reflect the storms in December 2005. The 100-year design discharge used in the model, at the Project site, is 11,023 cfs.

The 500-year design discharge used in the model, at the Project site, is 11,880 cfs, and is based on the 100-year design discharge calibrated by Stetson Engineers and compared with the design discharges listed in the FIS.

## 2.4 Hydraulic Assessment

According to FEMA’s analysis of the flooding in the Project vicinity, the 100-year flood would be influenced more by tidal action than by precipitation. Therefore, the 100-year stillwater elevation was assumed to be the elevation of the flow in the floodplain. Areas that are below this elevation and not adequately protected from flooding would be in the floodplain. These areas are shown in the Aerial View and Floodplain Overlay (Figure 4).

### 2.4.1 Design Tools

The hydraulics for Corte Madera Creek were analyzed using a standard step backwater calculation using the USACE’s Hydrologic Engineering Center River Analysis System (HEC-RAS), Version 4.0 computer program. The analyses were performed for the existing condition and proposed condition using the hydraulic model provided by Stetson Engineers (as previously mentioned in Section 2.3.2) as a base model. Elevations in the model originally referenced the National Geodetic Vertical Datum 29 (NGVD 29). These elevations were converted to NAVD 88 by adding 2.66 ft to match the Project datum.

### 2.4.2 Cross-Section Data

A hydraulic model was provided by Stetson Engineers, which included an analysis originally developed by USACE and calibrated by Stetson Engineers. This model included three reaches for Corte Madera Creek: Unit 3, Unit 4, and Unit 5. Unit 3 extends from College Avenue Bridge upstream to a point near the Ross Post Office. Unit 4 extends from a point near the Ross Post Office upstream to the Sir Francis Drake Boulevard Bridge, near the Ross gage. Unit 5 extends from the Sir Francis Drake Boulevard Bridge to the San Francisco Bay. The proposed pathway was modeled as two bridges within Unit 5, the most downstream reach of Corte Madera Creek.

### 2.4.3 Water Surface Elevations

The estimated water surface elevations for the existing conditions and with the proposed pathway are summarized in Table 1. The table shows water surface elevations at the cross section upstream of the pathway, at River Station 21200.

**Table 1. Estimated Water Surface Elevations**

Design Storm Event	Condition	Water Surface Elevation ft (NAVD 88)
100-year	Existing	9.32
	Proposed	9.32
500-year	Existing	9.61
	Proposed	9.62

The model results indicate a nominal change in water surface elevation.

#### 2.4.4 Drag Forces

Drag forces from water and debris caught on piers were estimated using an empirical drag equation that was developed from dimensional analysis (Parola, A.C., 2000):

$$F_D = C_D \rho A_r \frac{(V_r)^2}{2}$$

where

- $F_D$  = drag force, lbs;
- $C_D$  = coefficient of drag;
- $\rho$  = fluid density, lb/ft<sup>3</sup>;
- $A_r$  = reference area, ft<sup>2</sup>; and
- $V_r$  = reference velocity, ft/s.

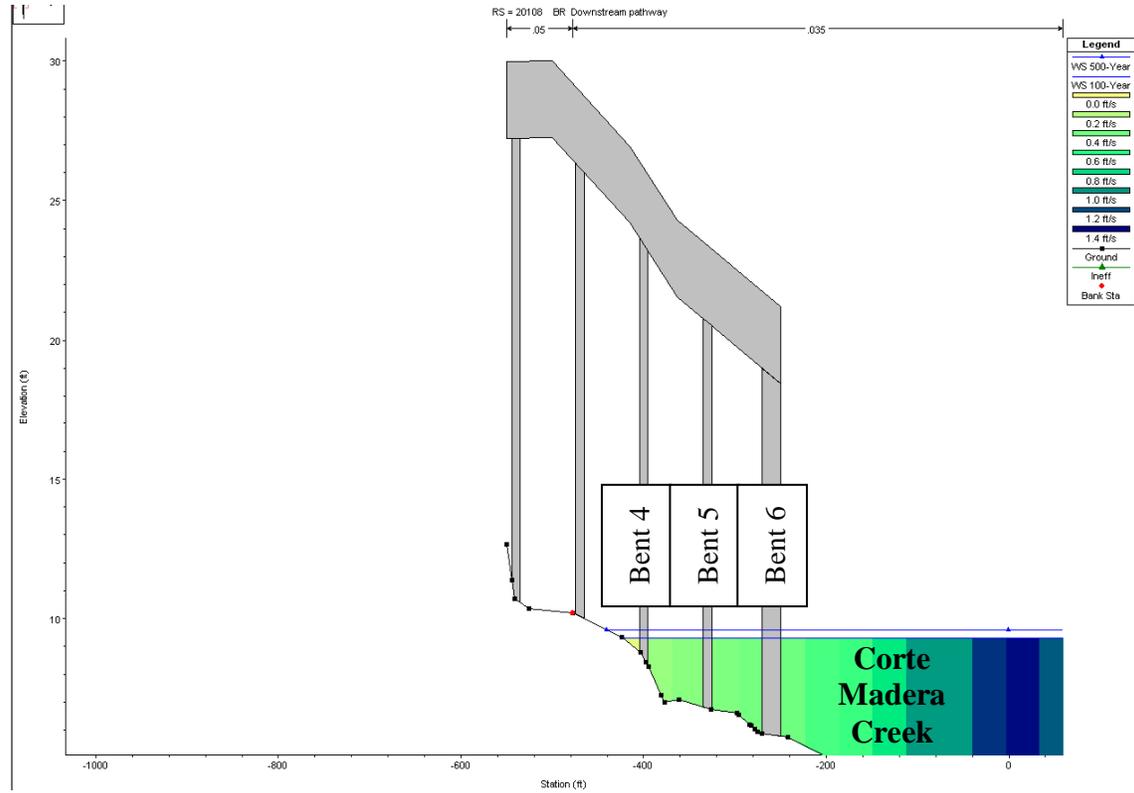
With 4.5-ft wide piers spaced 70 ft on center (and two 7-ft wide piers at the overlook), there would be 6 submerged piers, which would be subject to drag forces. Figure 6 and Figure 7 are cross sectional views of the pathway<sup>1</sup>, cut facing east, in the downstream direction of Corte Madera Creek. The piers are labeled from Station -400 to Station -260, with -400 as the northernmost pier.

The drag coefficients for piers can vary widely, from about 0.6 to 3.5. The drag forces for these piers were analyzed with a drag coefficient of 2.2 and are summarized in . The estimated drag force would decrease by a factor of 0.3 if the drag coefficient is 0.6 and increase by a factor of 1.6 if the drag coefficient is 3.5.

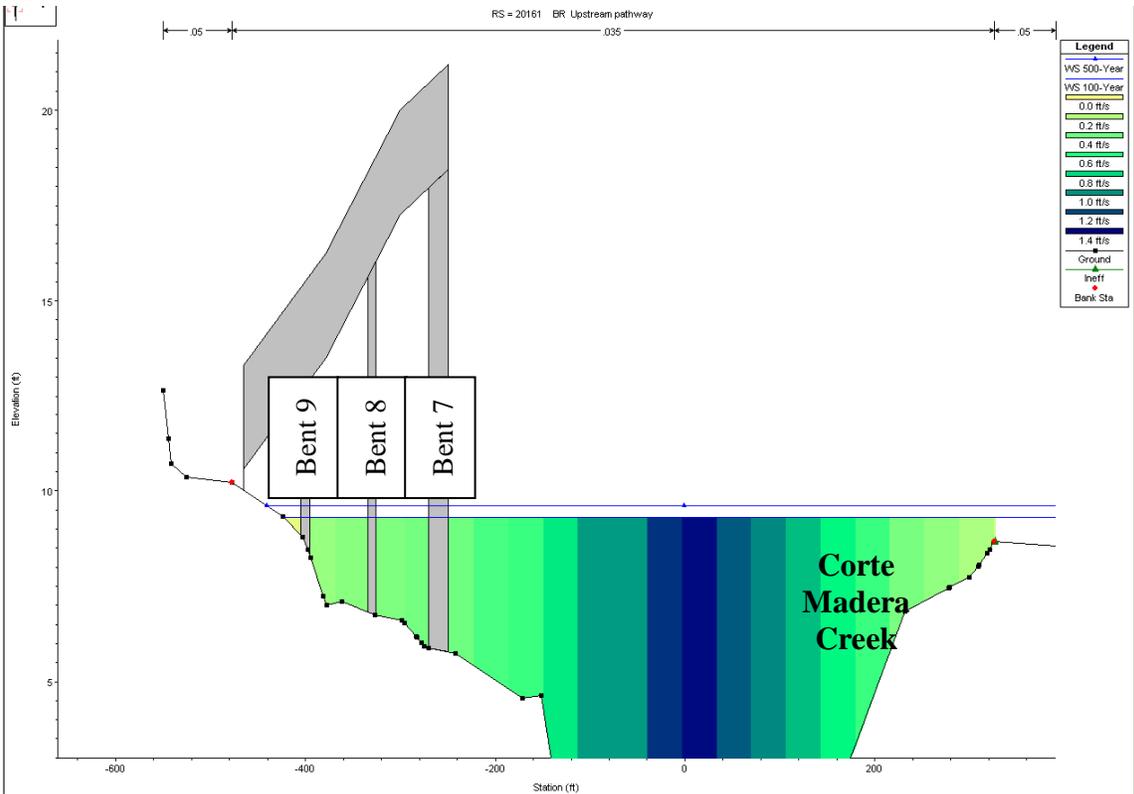
**Table 2. Drag Forces on Piers**

Bent No.	Station (ft)	Drag Force, $F_D$ (kips)	
		100-Year Flow	500-Year Flow
4	-400	0.03	0.04
5	-330	0.15	0.18
6	-260	0.60	0.65
7	-260	0.60	0.65
8	-330	0.15	0.18
9	-400	0.03	0.04

<sup>1</sup> The pathway is modeled as two bridges, with the shorter portion of the pathway before the “hairpin” as the upstream bridge and the longer portion of the pathway after the “hairpin” as the downstream bridge.



**Figure 6. Pathway (Downstream Bridge) Cross Section and Velocity Distribution Plot**



**Figure 7. Pathway (Upstream Bridge) Cross Section and Velocity Distribution Plot**

## 2.4.5 Scour Analysis

WRECO evaluated bridge scour per the criteria described in the FHWA Hydraulic Engineering Circular 18 (HEC-18), *Evaluating Scour at Bridges* (Fourth Edition) and the FHWA HEC-25, *Tidal Hydrology, Hydraulics, and Scour at Bridges* (First Edition).

### 2.4.5.1 Design Criteria

Typically, the minimum design criterion for bridge scour is the 100-year design storm. However, because the proposed pathway would be in a tidally influenced area, the hydraulic analysis also considered the 500-year design storm. Based on the pathway alignment from the bridge general plan, the piers were modeled to have no skew from the 100- and 500-year flow. The pier scour calculations were based on preliminary conceptual pier geometry from MSA Design and Consulting, Inc. and bridge plans from Jacobs and will be updated once more detailed information is available.

### 2.4.5.2 Existing Channel Bed

The channel bed consists mostly of silty sand, clayey sand, and clay. Borings were drilled by Parikh Consultants. Boring B-2 is located nearest to the location of the proposed pathway. The soil classification for the boring at this location is clayey sand. The particle size for which 50 percent is smaller,  $D_{50}$ , was found in the Grain Size Distribution Curve as 1 mm and the particle size for which 95 percent is smaller,  $D_{95}$ , was also found in the Grain Size Distribution Curve as 7 mm. The Grain Size Distribution Curve is included in the *Preliminary Foundation Report* (Parikh Consultants 2009).

### 2.4.5.3 Long-Term Bed Elevation Change

Channel bed elevation, thalweg location, and cross-sectional geometry may fluctuate over time as a result of changes in local sediment transport capacity and availability. Channel aggradation occurs when more sediment is supplied by watershed erosion and upstream channel flow than can be transported locally. Channel degradation occurs when sediment transport capacity exceeds supply. Only channel degradation is considered for the purposes of analyzing scour.

At the Project location, the long-term bed elevation changes would not be due to degradation. Based on historic information, the channel at the Project site aggrades. The tides and creek deposit clays and silts in the earthen channel (USACE 2009).

### 2.4.5.4 Contraction Scour

Contraction scour occurs when the flow area of a stream is reduced either by: 1) the natural contraction of the stream channel; 2) by a bridge structure; or 3) the overbank flow forced back to the channel. From the continuity equation, a decrease in flow area results in an increase in average velocity and bed shear stress through the contraction. Hence, there is an increase in erosive forces in the contraction section, and more bed material is removed from the contracted reach than is transported into the reach. This increase in transport of bed material from the reach lowers the natural bed elevation. As the bed elevation is lowered, the flow area increases, and thus, the velocity and shear stress decrease until relative equilibrium is reached; i.e., the quantity of bed material that

is transported into the reach is equal to that removed from the reach, or the bed shear stress is decreased to a value such that no sediment is transported out of the reach. Contraction scour, in a natural channel or at a bridge crossing, involves removal of material from the bed across all or most of the channel width (FHWA 2001).

At the proposed Project location, the critical velocity exceeded the mean approach velocity in the main channel. Therefore, a clear-water contraction scour is expected to exist at the pathway. The clear-water contraction scour equation, which was based on a development suggested by Laursen, was used to predict the scour depth in the contracted section:

$$y_2 = \left[ \frac{K_u Q^2}{D_m^{2/3} W^2} \right]^{3/7}$$

$$y_s = y_2 - y_o = \text{(average contraction scour depth)}$$

where:

- $y_2$  = average equilibrium depth in the contracted section after scour, ft;
- $y_o$  = average existing depth in the contracted section before scour, ft;
- $Q$  = discharge through the bridge or on the set-back overbank area at the bridge associated with the width  $W$ , ft<sup>3</sup>/s;
- $D_m$  = diameter of the smallest non-transportable particle in the bed material (1.25 $D_{50}$ ) in the contracted section, ft
- $D_{50}$  = median diameter of bed material, ft
- $W$  = bottom width of the contracted section less pier widths, ft; and
- $K_u$  = 0.0077 for English units.

The contraction scour was estimated as 2.57 ft for the 100-year design storm event and 2.68 ft for the 500-year design storm event.

#### 2.4.5.5 Pier Scour

Pier scour is caused by vortices forming at the base of the pier. The scour depth at the pier is determined by pier design, flow characteristics (flow rate, local flow velocity at the pier, and local flow depth at the pier), and sediment particle size distribution. The HEC-18 guidelines recommended the Colorado State University (CSU) Equation to determine the local pier scour. The CSU Equation is shown below. Scour calculations at the piers were estimated assuming the pile caps and footings will not be exposed.

CSU Equation:

$$y_s = 2.0y_1 K_1 K_2 K_3 K_4 \left( \frac{a}{y_1} \right)^{0.65} Fr_1^{0.43}$$

$$Fr = \frac{V_1}{\sqrt{gy_1}}$$

where:

$y_s$  = scour depth, ft;

$y_1$  = flow depth directly upstream of the pier, ft;

$K_1$  = correction factor for pier nose shape: 1.1 for square nose, 1.0 for round nose, circular cylinder, and group of cylinders, and 0.9 for sharp nose;

$K_2$  = correction factor for angle of attack: 1.0 when angle is 0 degrees;

$K_3$  = correction factor for bed condition: 1.1 for clear-water scour and small dunes;

$K_4$  = correction factor for armoring by bed material size: 1.0 if  $D_{50} < 2$  mm;

$a$  = pier width, ft;

$L$  = length of pier, ft;

$Fr_1$  = Froude Number directly upstream of the pier;

$V_1$  = mean velocity of flow directly upstream of the pier, ft/s; and

$g$  = gravitational acceleration, ft/s<sup>2</sup>.

The scour analysis for the piers was conducted using the local velocity at each pier, based on the velocity distribution generated by HEC-RAS (see Figure 6). Based on the HEC-RAS hydraulic model, 6 piers were found to be submerged under the 100- and 500-year design storm events. However, due to the possible fluctuation in channel geometry, it is recommended that all piers be protected to at least the local scour depth, per the scour analysis. The local pier scour depths for the 6 submerged piers are summarized in Table 3.

**Table 3. Pier Scour Summary**

Bent No.	Station (ft)	Local Pier Scour Depth, $y_s$ (ft)	
		100-Year Flow	500-Year Flow
1	-610	--	--
2	-540	--	--
3	-470	--	--
4	-400	2.81	2.92
5	-330	3.35	3.37
6	-260	5.83	5.85
7	-260	5.83	5.85
8	-330	3.35	3.37
9	-400	2.80	2.92

These scour depths were estimated assuming square nose pier shapes. The scour depths were also estimated assuming 0° skew. With a 15° skew, the scour depth would increase by a factor of 1.3.

#### 2.4.5.6 Total Scour

The total estimated scour will be the sum of the long-term bed change, contraction scour, and local pier scour. The itemized total scour depths for the piers of the proposed pathway are shown in Table 4.

**Table 4. Total Scour Depths**

Bent No.	Station (ft)	100-Year Flow				500-Year Flow			
		Long-Term Bed Elevation Change (ft)	Contraction Scour (ft)	Local Pier Scour (ft)	Total Scour (ft)	Long-Term Bed Elevation Change (ft)	Contraction Scour (ft)	Local Pier Scour (ft)	Total Scour (ft)
1	-610	---	---	---	---	---	---	---	---
2	-540	---	---	---	---	---	---	---	---
3	-470	---	---	---	---	---	---	---	---
4	-400	---	2.57	2.81	5.38	---	2.68	2.92	5.60
5	-330	---	2.57	3.35	5.92	---	2.68	3.37	6.05
6	-260	---	2.57	5.83	8.41	---	2.68	5.85	8.53
7	-260	---	2.57	5.83	8.41	---	2.68	5.85	8.53
8	-330	---	2.57	3.35	5.92	---	2.68	3.37	6.05
9	-400	---	2.57	2.80	5.37	---	2.68	2.92	5.60

The potential for lateral channel migration, contraction scour, and local pier scour should be considered in setting the pier foundation depths. This would help minimize structural damage and/or undermining. The total scour depths listed in Table 4 assume the pile caps of the pier foundation would not be exposed.

## **2.5 Navigable Waters – Corte Madera Creek**

According to the United States Environmental Protection Agency (2009), navigable waters include:

(1) all navigable waters of the United States, as defined in judicial decisions prior to the passage of the 1972 Amendments of the Federal Water Pollution Control Act, (Pub. L. 92-500) also known as the Clean Water Act (CWA), and tributaries of such waters as; (2) interstate waters; (3) intrastate lakes, rivers, and streams that are utilized by interstate travelers for recreational or other purposes; and (4) intrastate lakes, rivers, and streams from which fish or shellfish are taken and sold in interstate commerce.

Because the Project area includes portions that experience tidally influenced flooding, Corte Madera Creek was examined to determine whether it is classified as a navigable water of the U.S. and must therefore require further permitting from the U.S. Coast Guard. Corte Madera Creek is considered a navigable water of the U.S. However, the portion of the pathway that would be constructed as part of Phase I of this Project would be in a shallow area of the channel. The limits of the work would be beyond the main part of the channel. Because the flow in this area is shallow compared to the main channel, boats would most likely not travel in this area. A Coast Guard permit would not be required for the proposed Project.

## **2.6 Sea Level Rise**

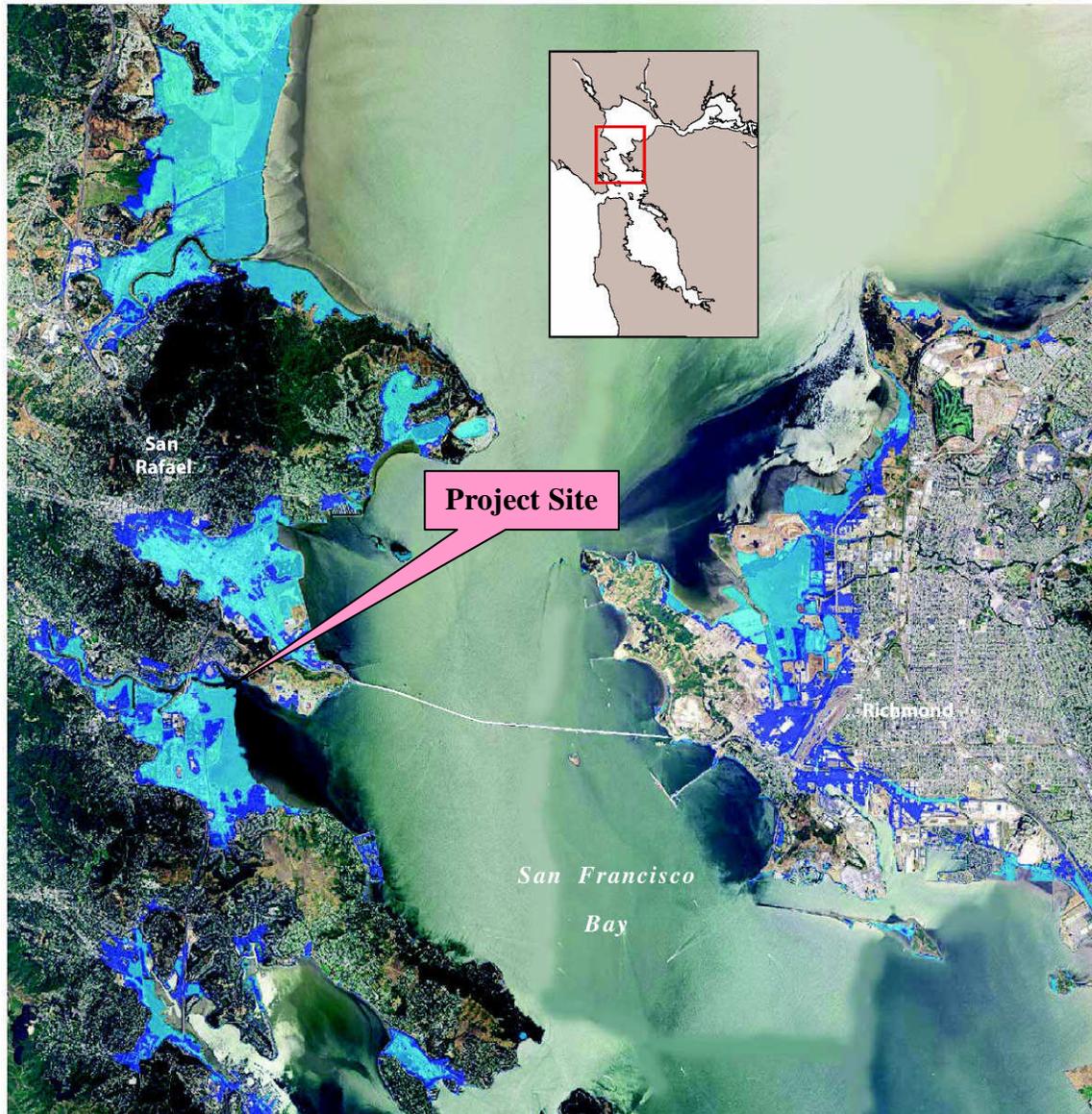
Tidal gages along the California Coast have recorded sea level rises over the past several decades that show an increase rate of about 7 to 8 in. per century, which is a similar rate to sea level rise estimates on a global level. Current models predict that by 2050, the sea level will rise approximately 1.0 ft to 1.5 ft from the sea level elevation measured in 2000. By 2100, the sea level is predicted to increase by 2.7 ft to 4.8 ft from the year 2000's elevation. Global warming could result in a 16-in. sea level rise by 2050 and a 55 in. rise by 2100 in the San Francisco Bay alone (Cayan, et. al. 2009). Figure 8 shows the areas that are affected by the sea level rise; however, the extent of the inundation does not reflect any existing shoreline protection or wave activity.

While the Project would not affect the sea level rise, there would be an increase in the flooding potential at the Project location because the Project is susceptible to tidal flooding. An increase of 16 in. in sea level would result in the inundation of the entire Project area (see Figure 8).



## SHORELINE AREAS VULNERABLE TO SEA LEVEL RISE: CENTRAL BAY NORTH

- Area vulnerable to an approximate 16 inch sea level rise
- Area vulnerable to an approximate 55 inch sea level rise



SOURCE: Inundation data from Knowles, 2008. Additional salt pond elevation data by Siegel and Bachand, 2002. Aerial imagery is NAIP 2005 data.  
DISCLAIMER: Inundation data does not account for existing shoreline protection or wave activity. These maps are for informational purposes only. Users, by their use, agree to hold harmless and blameless the State of California and its representatives and its agents for any liability associated with its use in any form. The maps and data shall not be used to assess actual coastal hazards, insurance requirements, or property values or be used in lieu of Flood Insurance Rate Maps issued by the Federal Emergency Management Agency (FEMA).

**Figure 8. Sea Level Rise**

Source: San Francisco Bay Conservation and Development Commission

### **3 PROJECT EVALUATION**

The portion of the Project south of SFDB would be constructed within the coastal salt marsh habitat near the northern bank of Corte Madera Creek and would be in an area that is subject to inundation from the 100-year base flood. The pathway would be designed to withstand the 100-year flood. The portion of the Project north of SFDB would be constructed outside of the 100-year base flood but within the 500-year flood. In both areas, the pathway would be subject to flooding from tidal influences. While there would be some fill resulting from Project construction, impacts resulting from these actions would be insignificant because the flooding in the Project area is attributed more to tidal flooding from San Francisco Bay rather than flooding from Corte Madera Creek.

The Federal Highway Administration (FHWA) defines a “significant encroachment” as a highway encroachment, and any direct support of likely base floodplain development, that would involve one or more of the following construction or flood-related impacts: 1) significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community’s only evacuation route; 2) a significant risk; or 3) a significant adverse impact on the natural and beneficial floodplain values (1994).

#### **3.1 Risk Associated with Implementation of the Action**

As discussed earlier, flooding in the Project area is attributed more to tidal flooding from San Francisco Bay than to flooding from Corte Madera Creek. Given the small percentage of added impervious area from the Project in relation to the San Francisco Bay watershed area, tidal flooding and, therefore, flooding in general, would not be exacerbated by the added impervious area from the Project.

The effects of the Project on the floodplain were evaluated using the USACE’s HEC-RAS modeling software (Version 3.1.3). Hydraulic analyses were performed for the existing and proposed conditions. A hydraulic model was provided by Stetson Engineers, which included an analysis conducted by USACE and calibrated by Stetson Engineers. This model included three reaches for the Corte Madera Creek: Unit 3, Unit 4, and Unit 5. The proposed pathway is within Unit 5.

The proposed pathway was modeled with a roadway deck thickness of 2.75 ft with 4.5-ft wide piers spaced 70 ft apart (and two 7-ft wide piers at the overlook). A known downstream water surface elevation of 9.1 ft, which is based on the stillwater elevation referenced in the FIS, was set as a downstream control. The estimated water surface elevations for the existing conditions were compared with the water surface elevations with the proposed pathway. The results from this preliminary analysis indicated no changes in the water surface elevations or velocities in the vicinity of the proposed pathway.

If the structures proposed would occupy a larger volume of the 100-year base floodplain than the existing structures, then the Project would decrease the storage capacity of the

floodplain. For the duration of this phase of the Project, it is assumed that the timber trestle bridge piers would remain within the SMART right-of-way. Because the new pathway would add piers, the storage capacity of the floodplain would be decreased. The Project may increase the impervious surface area in the Project vicinity, but by an amount that would be insignificant compared with the total watershed area (24.7 mi<sup>2</sup>). Therefore, the risks to the floodplain due to the added impervious area would be negligible.

### 3.2 Impacts on Natural and Beneficial Floodplain Values

Natural and beneficial floodplain values include, but are not limited to: fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and ground water recharge.

The beneficial uses of the Corte Madera Creek and the Central San Francisco Bay are listed in Table 5.

**Table 5. Beneficial Uses**

Beneficial Use	Corte Madera Creek	Central San Francisco Bay
Cold Freshwater Habitat	x	
Commercial and Sport Fishing		x
Estuarine Habitat		x
Industrial Process Supply		x
Industrial Service Supply		x
Navigation		x
Non-Contact Water Recreation	x	x
Shellfish Harvesting		x
Spawning, Reproduction, and/or Early Development	x	x
Warm Freshwater Habitat	x	
Water Contact Recreation	x	x
Wildlife Habitat	x	x

\* Beneficial uses include but are not limited to these uses

Source: San Francisco Bay Regional Water Quality Control Board, 2007

Because of the prominence of fish and wildlife habitat within the Project vicinity and the fact that a majority of the Project footprint lies within a floodplain, construction must be planned so as to avoid or reduce natural and beneficial floodplain impacts to the maximum extent practicable.

The Project would not impact the Corte Madera Ecological Reserve Marsh and Shorebird Marsh and no mitigation measures would be taken in regards to these marshes. The Project would involve construction within Corte Madera Creek. A wetland delineation report for the Project was verified by the USACE on July 1, 2009. Measures to restore and preserve the natural and beneficial floodplain values are discussed in Section 3.5.

### **3.3 Support of Probable Incompatible Floodplain Development**

As defined by FHWA, the support of incompatible base floodplain development will encourage, allow, serve, or otherwise facilitate incompatible base floodplain development, such as commercial development or urban growth.

The Project would not support probable incompatible floodplain development. The purpose of this Project is to provide safe access for pedestrians and bicyclists. The use of the path would be restricted to pedestrians, bicyclists, and maintenance vehicles. The area north of SFDB would be in an already developed area.

### **3.4 Measures to Minimize Floodplain Impacts Associated with the Action**

The Project site would be located within an area that is tidally influenced. During a high tide event, the entire area would be subjected to tidal flooding, more so than by flooding from the creek. The Project can take into consideration mitigation for the loss of storage resulting from areas filled by the Project's construction. Excavation of additional storage area equal in volume to the increased occupied floodplain volume would help to make up for the loss of storage resulting from the fill. Biofiltration swales are proposed to treat the net added impervious area resulting from the Project. The biofiltration swales would help to offset the loss of storage resulting from the fill. Locations of proposed potential biofiltration swales are identified in the *Water Quality Study Report* (WRECO, 2010).

The drainage systems for the Project should be designed such that the existing drainage pattern is maintained. The flooding during the high tide event should not be worsened, and the drainage systems for the pathway should be designed such that the flows can adequately drain after the high tide recedes.

Mitigation measures proposed for the Project to minimize impacts to the floodplain include the following:

- California rainy season construction avoidance timeline
  - Work in the creek should be conducted between April 16 and October 14. Work within an inundated drainage or channel or in-water work will be conducted outside the Central and Northern California rainy season of October 15 through April 15.
- Restore flows following the completion of construction
  - Following completion of the Project, all materials used to maintain flow and divert water from the study area during the construction period, including, but not limited to, coffer dams, pipes, filter fabric, fill material, and gravel should be removed. All excess soil should be disposed at an approved upland site.

### **3.5 Measures to Restore and Preserve the Natural and Beneficial Floodplain Values Impacted by this Action**

Mitigation for impacts to wetlands will be identified in the Section 404 permit for the Project, which will be secured prior to initiating Project construction. The identified potential impacts of the Project on the natural and beneficial floodplain values include:

- Temporary loss of vegetation from cleaning of the channel or construction
- Potential effects on endangered species or their habitats (within the Project site) during maintenance and management activities
- The potential removal of bank aquatic habitats during the removal of accumulated debris

Mitigation measures proposed for the Project include but are not limited to the following:

- Establish boundary for work area within “sensitive habitat”
  - Barrier fencing will be established within the salt marsh habitat to delineate the boundary between where construction activities are allowed and prohibited. This will reduce potential effects to wetlands outside of the study area that may be hydrologically connected to wetlands within the study area.
- Implement erosion control measures and Storm Water Pollution Prevention plans
  - A SWPPP and erosion control BMPs will be developed to minimize wind or water-related erosion. A SWPPP will be developed for the Project, as is required by the Regional Water Quality Control Board (RWQCB).
- Replant/Re-seed to stabilize disturbed area
  - Slopes affected by the proposed Project would be planted or re-seeded to stabilize slopes against erosion. The salt marsh habitat affected by the Project would also be planted or re-seeded to revegetate the disturbed habitat. Following construction, native salt marsh plants will also be installed at the location of the disturbed area.
- Off-site purchase of wetland habitat
  - Habitat would be created, restored, or set aside to offset the impacts to the tidal salt marsh.

TAM would need to acquire necessary permits from the USACE, United States Fish and Wildlife Service, California Department of Fish and Game, the San Francisco Bay RWQCB, and the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service, and the San Francisco Bay Conservation and Development Commission.

### **3.6 Practicability of Alternatives to any Significant Encroachments**

As defined by the FHWA, risk shall mean the consequences associated with the probability of flooding attributable to an encroachment. It shall include the potential for property loss and hazard to life during the service life of the pathway.

The Project would not significantly encroach on the floodplain. Because of the small project footprint in the base floodplain, there would not likely be a significant increase of the floodplain elevation for the 100-year base flood. In addition, as stated previously, the primary cause of flooding in the area is due to tidal action from San Francisco Bay. Therefore, alternatives were not considered.

### **3.7 Practicability of Alternatives to any Longitudinal Encroachments**

The FHWA defines a longitudinal encroachment as an action within the limits of the base floodplain that is longitudinal to the normal direction of the floodplain.

A longitudinal encroachment is “[a]n encroachment that is parallel to the direction of flow. Example: A highway that runs along the edge of a river is, usually considered a longitudinal encroachment.” The requirement for consideration of avoidance alternatives must be included in a Location Hydraulic Study by including an evaluation and a discussion of the practicability of alternatives to any significant encroachment or any support of incompatible floodplain development.

The Project would be constructed perpendicular to the direction of flow of Corte Madera Creek. Longitudinal encroachments due to the Project are not anticipated. Therefore, alternatives were not considered.

### **3.8 Coordination with Local, State, and Federal Water Resources and Floodplain Management Agencies**

The Project would not cross any regulatory floodways. The Project would not encroach into the Corte Madera Creek’s floodplain laterally; however, the proposed pathway would encroach transversely into the floodplain. The Marin County Flood Control and Water Conservation District and FEMA should review this report to determine if a floodplain map revision would be necessary. A Conditional Letter of Map Revision is not anticipated because the increase in base floodplain elevation is negligible. Regulatory permits, as mentioned in Section 3.5, will also be required as the Project enters into the final design phase. The *Water Quality Study Report* describes the regulatory requirements for the Project in further detail (WRECO 2010).

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Location Hydraulic Study Report  
Central Marin Ferry Connection Project  
Marin County, California

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## **Appendix A     Summaries of Floodplain Encroachment**

### SUMMARY FLOODPLAIN ENCROACHMENT REPORT

**County:** Marin

**Route:** Central Marin Ferry Connection

**Limits:** The project site is bound on the west by U.S. 101 and on the east by Larkspur Landing Circle. The portion of the Project within the Zone VE floodplain is south of Sir Francis Drake Boulevard.

**Floodplain Description:** Under current conditions, the Project area is susceptible to flooding by the 100-year base floodplain south of Sir Francis Drake Blvd. and the 500-year base floodplain north of Sir Francis Drake Blvd. However, the proposed Project would not worsen flooding conditions at the Project site.

- |   | No                                  | Yes                                 |
|---|-------------------------------------|-------------------------------------|
| 1. Is the proposed action a longitudinal encroachment of the base floodplain?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 2. Are the risks associated with the implementation of the proposed action significant?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 3. Will the proposed action support probable incompatible floodplain development?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 4. Are there any significant impacts on natural and beneficial floodplain values?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 5. Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain. | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 6. Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 7. Are Location Hydraulic Studies that document the above answers on file? If not explain.  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

**PREPARED BY:**

 4/23/2010  
\_\_\_\_\_  
Signature – Hydraulic Engineer (Han-Bin Liang) Date

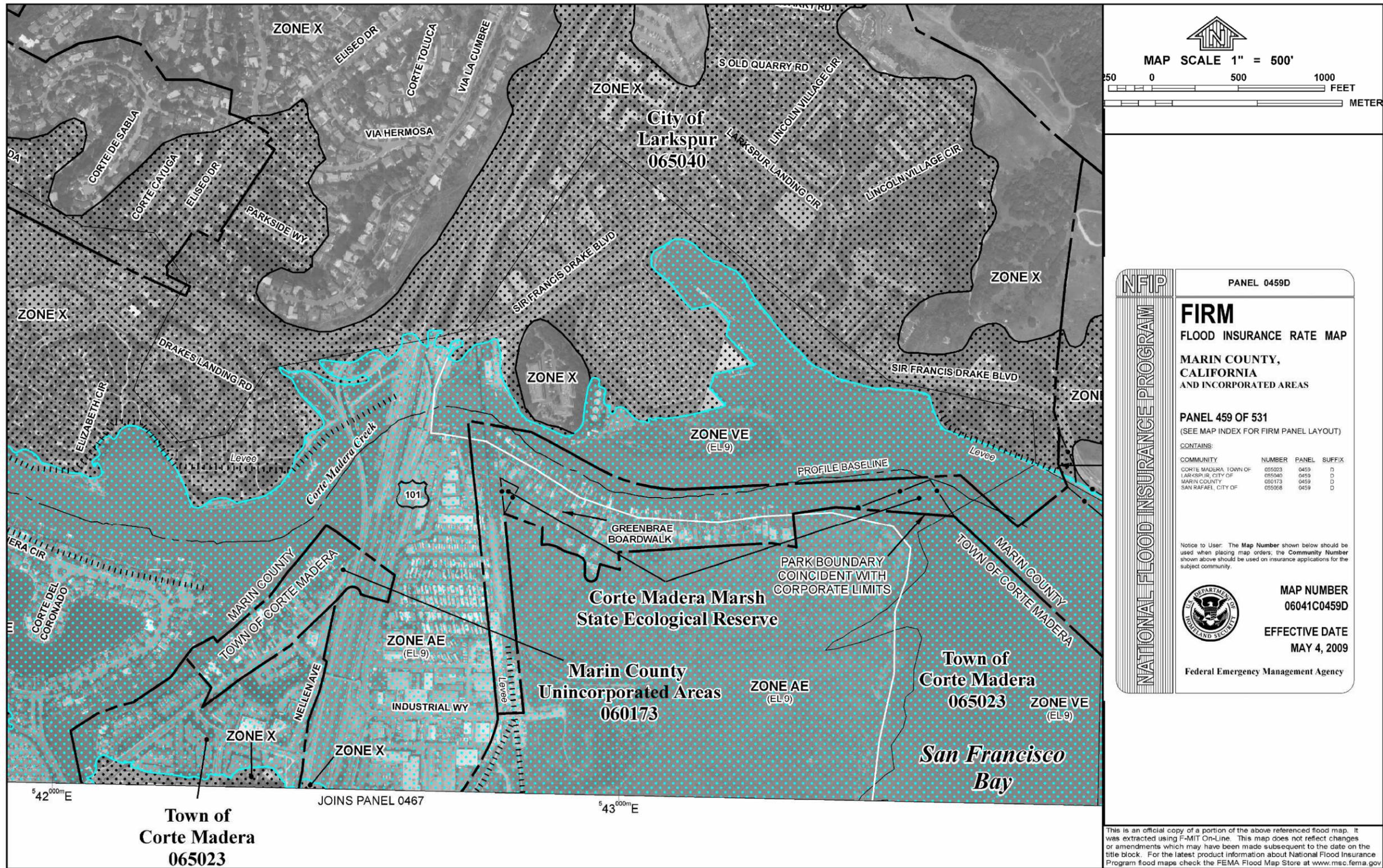
**CONCURRENCE FROM:**

\_\_\_\_\_  
Signature – District Hydraulic Engineer Date

\_\_\_\_\_  
Signature – District Environmental Branch Chief Date

\_\_\_\_\_  
Signature – District Project Engineer Date

## **Appendix B      Federal Emergency Management Agency Flood Insurance Rate Maps**



**NFIP** PANEL 0459D

**FIRM**  
 FLOOD INSURANCE RATE MAP  
 MARIN COUNTY,  
 CALIFORNIA  
 AND INCORPORATED AREAS

**PANEL 459 OF 531**  
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CORTE MADERA, TOWN OF	055023	0459	D
LARKSPUR, CITY OF	055040	0459	D
MARIN COUNTY	050173	0459	D
SAN RAFAEL, CITY OF	055058	0459	D

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER**  
06041C0459D

**EFFECTIVE DATE**  
MAY 4, 2009

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

Location Hydraulic Study Report  
 Central Marin Ferry Connection Project  
 Marin County, California

### LEGEND

**SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

**FLOODWAY AREAS IN ZONE AE**

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

**OTHER FLOOD AREAS**

- ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

**OTHER AREAS**

- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.

**COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**

**OTHERWISE PROTECTED AREAS (OPAs)**

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary

Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

Base Flood Elevation line and value; elevation in feet

**MAP SCALE 1" = 500'**

50 0 500 1000 FEET

METER

PANEL 0459D

## FIRM

**FLOOD INSURANCE RATE MAP**

**MARIN COUNTY, CALIFORNIA AND INCORPORATED AREAS**

**PANEL 459 OF 531**  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

**CONTAINS:**

COMMUNITY	NUMBER	PANEL	SUFFIX
CORTE MADERA, TOWN OF	06023	0459	D
LARKSPUR, CITY OF	06049	0459	D
MARIN COUNTY	060173	0459	D
SAN RAFAEL, CITY OF	06058	0459	D

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER**  
**06041C0459D**

**EFFECTIVE DATE**  
**MAY 4, 2009**

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using FIRM OnLine. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

## **Appendix C    Project Photographs**



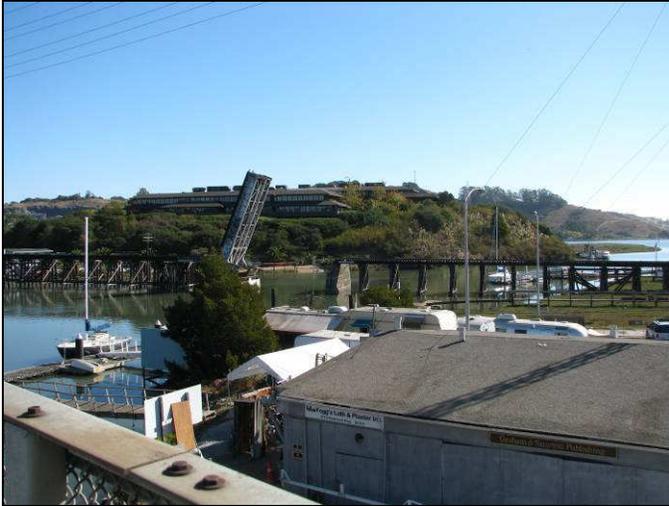
Corte Madera Creek and existing railroad bridge, viewed from the southwest, facing northeast



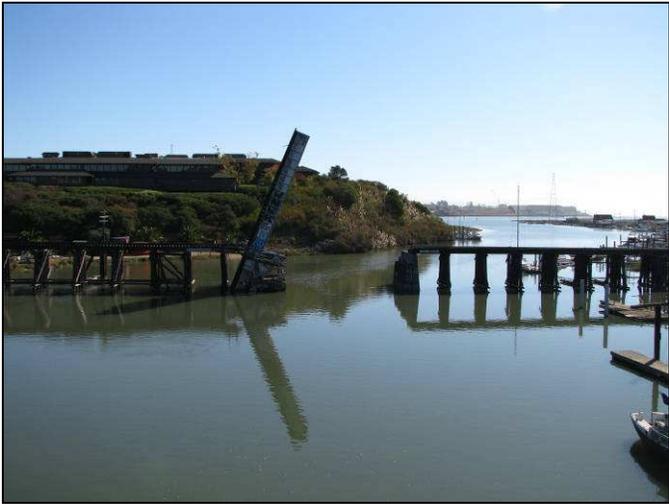
North bank of Corte Madera Creek and existing railroad bridge, viewed from the southwest, facing east



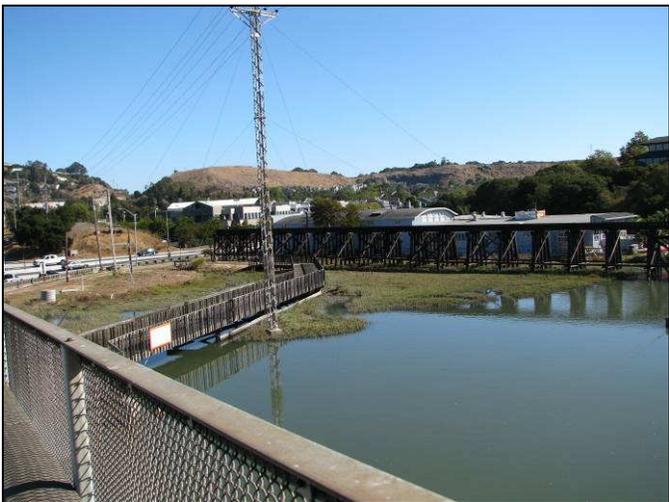
U.S. 101 bridge (left), railroad bridge (right), and Corte Madera Creek, facing north.



View of Corte Madera Creek from the U.S. 101 pedestrian pathway, facing northeast



View of the Corte Madera Creek from the U.S. 101 bridge, facing east



View of the location for the proposed pathway, south of SFDB, from the U.S. 101 bridge, facing northeast



Railroad bridge viewed from the northwest, facing southeast



U.S. 101 bridge from the Project site, facing south



Corte Madera Marsh State Ecological Reserve, facing southeast





REPLY TO  
ATTENTION OF

## DEPARTMENT OF THE ARMY

SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS  
1455 MARKET STREET  
SAN FRANCISCO, CALIFORNIA 94103-1398

OCT 21 2009

Regulatory Division

SUBJECT: File Number 2009-00131N

Mr. Bill Whitney  
Transportation Authority of Marin  
750 Lindero Street, Suite 200  
San Rafael, California 94901

Dear Mr. Whitney:

Thank you for your submittal of September 3, 2009 requesting confirmation of the extent of Corps of Engineers jurisdiction at the Central Marin Ferry Connection project located directly east of Highway 101 at the Sir Francis Drake Boulevard exit. It spans from just south of Sir Francis Drake Boulevard to approximately 1,200 feet north of Sir Francis Drake Boulevard (APNs 018-171-01, -02, -16, -17, -18, -19, -35; 018-172-01, -02, -16, -17, -19, -21; 018-191-05, -06, -07, -08, -09, -25, and -27).

We previously verified Corps jurisdiction to the north of this additional area in a letter dated July 1, 2009 with attached delineation maps. The enclosed map entitled, "Jurisdictional Waters of the U.S., Central Marin Ferry Connection Project, Larkspur, CA," date certified October 20, 2009, accurately depicts the extent and location of Corps jurisdiction within the study area boundary. The jurisdictional delineation is based on the current conditions of the site, as verified during a field investigation of April 7, 2009, and other data included with your submittal. This jurisdictional delineation will expire in five (5) years from the date of this letter, unless new information or a change in field conditions warrants a revision to the delineation map prior to the expiration date.

All proposed work and/or structures extending bayward or seaward of the line on shore reached by: (1) mean high water (MHW) in tidal waters, or (2) ordinary high water in non-tidal waters designated as navigable waters of the United States, must be authorized by the Corps of Engineers pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. Section 403). Additionally, all work and structures proposed in unfilled portions of the interior of diked areas below former MHW must be authorized under Section 10 of the same statute.

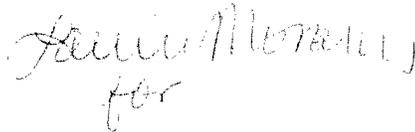
Unless exempt by regulation, all proposed discharges of dredged or fill material occurring below the plane of ordinary high water in non-tidal waters, below the plane of the high tide line in tidal waters of the United States, and within the lateral extent of wetlands adjacent to these waters require Department of the Army authorization and the issuance of a permit under Section 404 of the Clean Water Act (33 U.S.C. Section 1344).

Waters of the United States generally include the territorial seas, all navigable waters, including waters subject to the ebb and flow of the tide, non-tidal interstate and intrastate waters and their tributary waters, including lakes, ponds, rivers, streams, intermittent streams, and adjacent wetlands, the use, degradation, or destruction of which could affect interstate or foreign commerce.

You are advised that the Corps has established an Administrative Appeal Process, as described in 33 CFR Part 331 (65 FR 16,486; Mar. 28, 2000), and outlined in the enclosed flowchart and "Notification of Administrative Appeal Options, Process, and Request for Appeal" form (NAO-RFA). If you do not intend to accept the approved jurisdictional determination, you may elect to provide new information to the District Engineer for reconsideration or submit a completed NAO-RFA form to the Division Engineer to initiate the appeal process. You will relinquish all rights to appeal, unless the Corps receives new information or a completed NAO-RFA form within sixty (60) days of the date of the NAO-RFA.

You may refer any questions on this matter to Mr. Bryan Matsumoto of my staff by telephone at 415-503-6786 or by e-mail at [bryan.t.matsumoto@usace.army.mil](mailto:bryan.t.matsumoto@usace.army.mil). All correspondence should be addressed to the Regulatory Division, North Branch, referencing the file number at the head of this letter.

Sincerely,

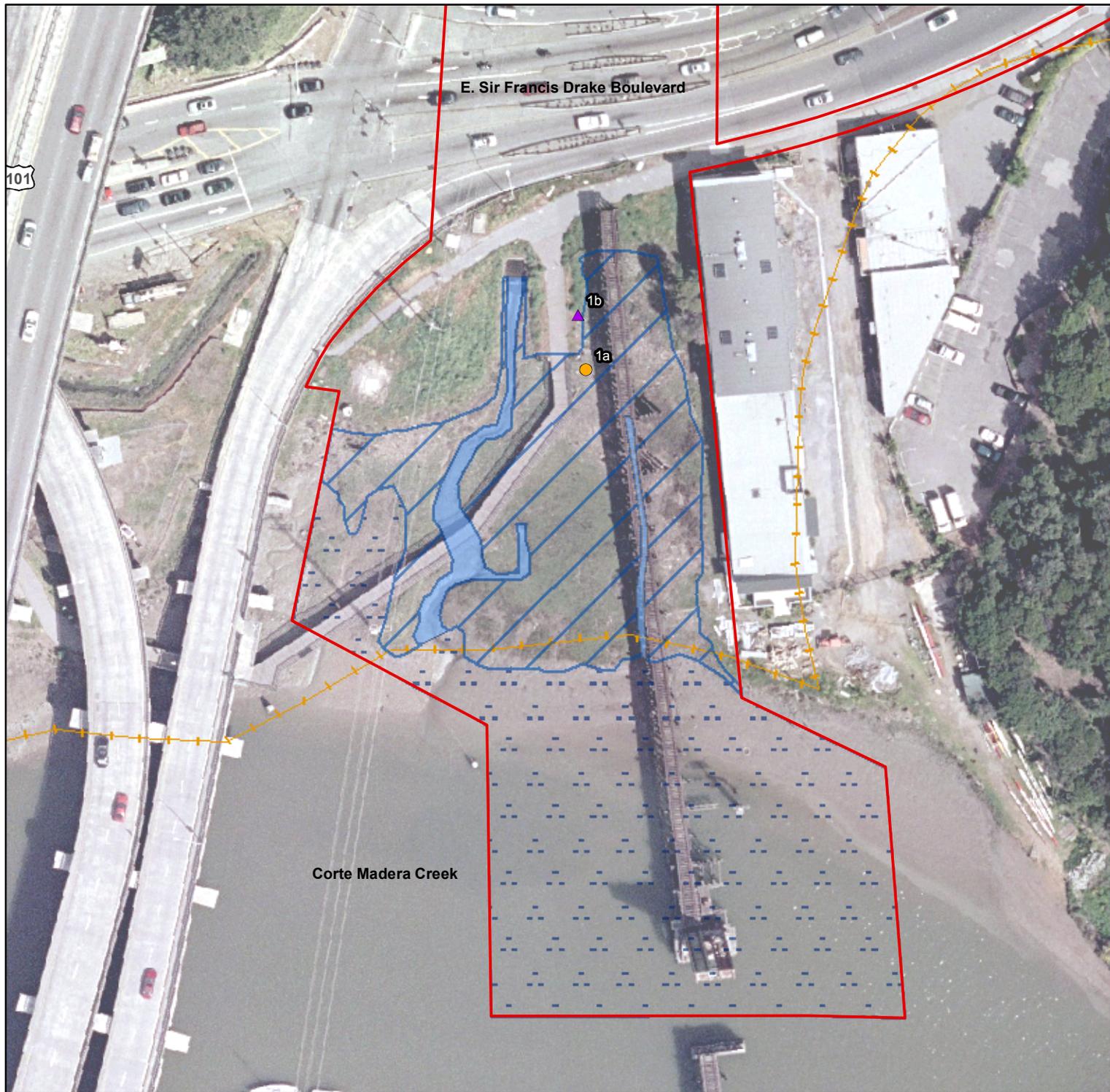
Handwritten signature of Jane M. Hicks in cursive, with the word "for" written below it.

Jane M. Hicks  
Chief, Regulatory Division

Enclosures

Copy Furnished (w/ delineation map only):

RWQCB, Oakland, CA (Attn: Marla Lafer)  
JE Jacobs, Oakland, CA (Attn: Lauren Abom)



**Final Jurisdictional Wetlands and Waters**

-  Open Water (OW) [Subject to Sect. 10 & 404]
-  Tide Channel (TC) [Subject to Sect. 10 & 404]
-  Salt Marsh (SM) [Subject to Sect. 404]

**Data Points**

-  Upland Point
-  Wetland Point

**NRCS Soils Layer**

-  204 - Xerorthents-Urban Land
-  Study Area (Revised 08/18/2009)

**Figure 3. Revised Final Determination of Jurisdictional Wetlands and Waters of the U.S.**  
 Central Marin Ferry Connection Project  
 Larkspur, CA

August 31, 2009



1 inch = 75 feet



Source: Aerial- 200\_aa37\_1.tif Marinmap.org; USGS San Rafael Quad-CASIL o\_sw030; Project Boundary - Jacobs Carter Burgess; Soils - NRCS 2008; Wetlands - Digitized NRM, Final - Jacobs. Site Verification- 4/7/09 (B. Matsumoto).







REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS  
1455 MARKET STREET  
SAN FRANCISCO, CALIFORNIA 94103-1398

JUL 1 2009

Received

JUL 3

JAN 15  
Oakland, CA

Regulatory Division

SUBJECT: File Number 2009-00131N

Mr. Bill Whitney  
Transportation Authority of Marin  
750 Lindero Street, Suite 200  
San Rafael, California 94901

Dear Mr. Whitney:

Thank you for your submittal of February 17, 2009 requesting confirmation of the extent of Corps of Engineers jurisdiction at the Central Marin Ferry Connection project located directly east of Highway 101 at the Sir Francis Drake Boulevard exit. It spans from just south of Sir Francis Drake Boulevard to approximately 1,200 feet north of Sir Francis Drake Boulevard (APNs 018-171-01, -02, -16, -17, -18, -19, -35; 018-172-01, -02, -16, -17, -19, -21; 018-191-05, -06, -07, -08, -09, -25, and -27).

The enclosed maps entitled, "Figure 3a, Jurisdictional Waters of the U.S., Central Marin Ferry Connection Project, Larkspur, CA," "Jurisdictional Waters of the U.S., Central Marin Ferry Connection Project, Larkspur, CA, Figure 3b," and "Jurisdictional Waters of the U.S., Central Marin Ferry Connection Project, Larkspur, CA, 3c," date certified June 2, 2009, accurately depicts the extent and location of Corps jurisdiction within the project boundary. The jurisdictional delineation is based on the current conditions of the site, as verified during a field investigation of April 7, 2009, and other data included with your submittal. This jurisdictional delineation will expire in five (5) years from the date of this letter, unless new information or a change in field conditions warrants a revision to the delineation map prior to the expiration date.

All proposed work and/or structures extending bayward or seaward of the line on shore reached by: (1) mean high water (MHW) in tidal waters, or (2) ordinary high water in non-tidal waters designated as navigable waters of the United States, must be authorized by the Corps of Engineers pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. Section 403). Additionally, all work and structures proposed in unfilled portions of the interior of diked areas below former MHW must be authorized under Section 10 of the same statute.

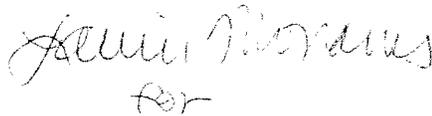
Unless exempt by regulation, all proposed discharges of dredged or fill material occurring below the plane of ordinary high water in non-tidal waters, below the plane of the high tide line in tidal waters of the United States, and within the lateral extent of wetlands adjacent to these waters require Department of the Army authorization and the issuance of a permit under Section 404 of the Clean Water Act (33 U.S.C. Section 1344).

Waters of the United States generally include the territorial seas, all navigable waters, including waters subject to the ebb and flow of the tide, non-tidal interstate and intrastate waters and their tributary waters, including lakes, ponds, rivers, streams, intermittent streams, and adjacent wetlands, the use, degradation, or destruction of which could affect interstate or foreign commerce.

You are advised that the Corps has established an Administrative Appeal Process, as described in 33 CFR Part 331 (65 FR 16,486; Mar. 28, 2000), and outlined in the enclosed flowchart and "Notification of Administrative Appeal Options, Process, and Request for Appeal" form (NAO-RFA). If you do not intend to accept the approved jurisdictional determination, you may elect to provide new information to the District Engineer for reconsideration or submit a completed NAO-RFA form to the Division Engineer to initiate the appeal process. You will relinquish all rights to appeal, unless the Corps receives new information or a completed NAO-RFA form within sixty (60) days of the date of the NAO-RFA.

You may refer any questions on this matter to Mr. Bryan Matsumoto of my staff by telephone at 415-503-6786 or by e-mail at [bryan.t.matsumoto@usace.army.mil](mailto:bryan.t.matsumoto@usace.army.mil). All correspondence should be addressed to the Regulatory Division, North Branch, referencing the file number at the head of this letter.

Sincerely,

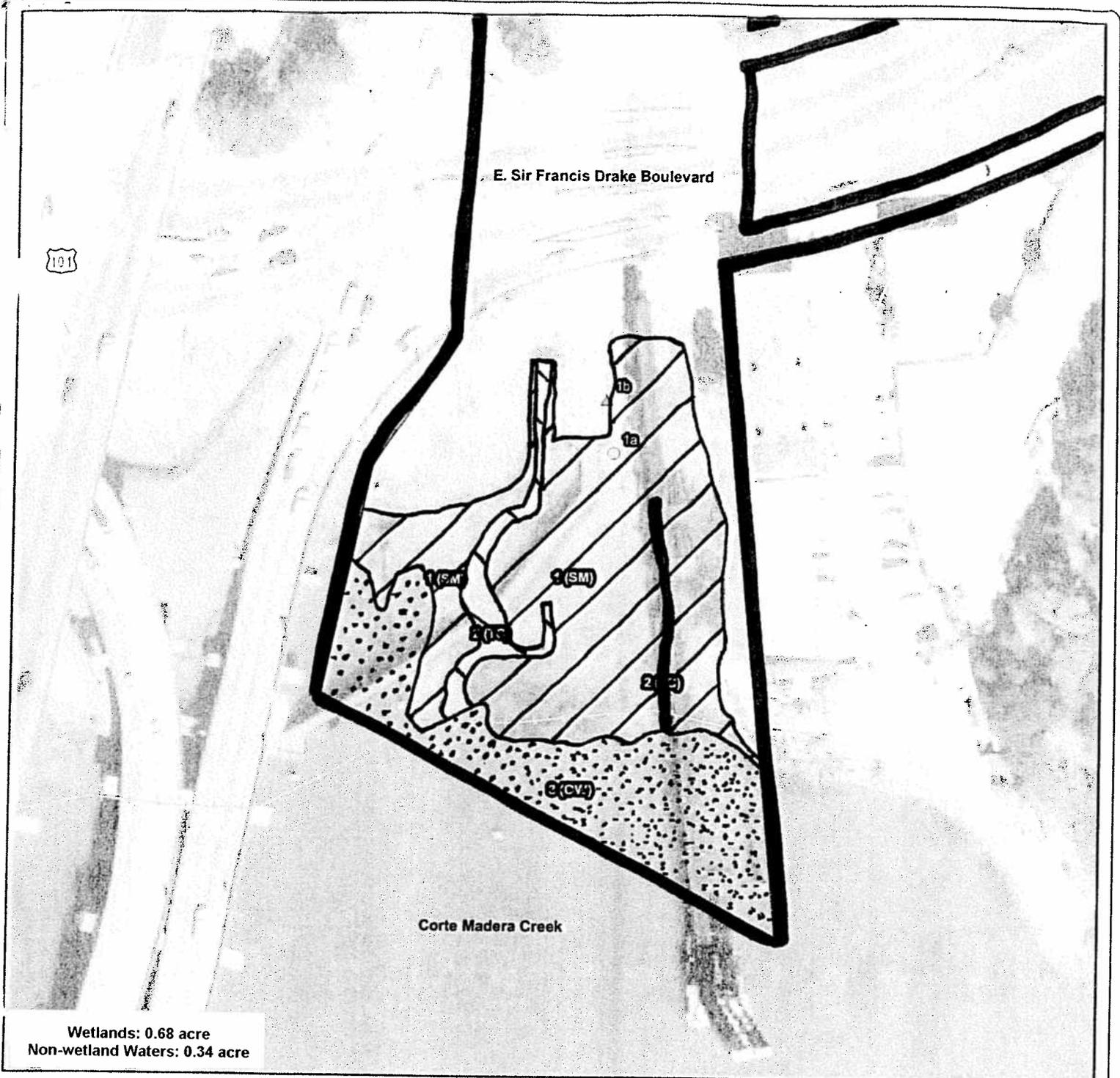


Jane M. Hicks  
Chief, Regulatory Division

Enclosures

Copy Furnished (w/ delineation map only):

RWQCB, Oakland, CA (Attn: Marla Lafer)  
JE Jacobs, Oakland, CA (Attn: Lauren Abom)

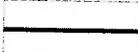


Wetlands: 0.68 acre  
 Non-wetland Waters: 0.34 acre



**US Army Corps of Engineers**

Jurisdictional Delineation Pursuant to Section 10 of the Rivers and Harbors Act (RHA) and Section 404 of the Clean Water Act (CWA): The project site is located directly east of Highway 101 at the Sir Francis Drake Boulevard exit. It spans from just south of Sir Francis Drake Boulevard to approximately 1,200 feet north of Sir Francis Drake Boulevard (APNs 018-171-01, -02, -16, -17, -18, -19, -35; 018-172-01, -02, -16, -17, -19, -21; 018-191-05, -06, -07, -08, -09, -25, and -27).



Study Area Boundary



Wetlands subject to Section 10 RHA and Section 404 CWA



Open Water subject to Section 10 RHA and Section 404 CWA



Wetlands subject to Section 404 CWA

Section 10 of the RHA and Section 404 of the CWA Jurisdiction Verified only within the designated Study Area Boundary.

**Figure 3a**  
**Jurisdictional Waters of the U.S.**  
 Central Marin Ferry Connection Project  
 Larkspur, CA

May 1, 2009



1 inch equals 75 feet



Source: Aerial- 2003 USGS Airphotos; USGS San Rafael Quad- CASL o\_sw030; Project Boundary - Jacobs Carter Burgess; Soils - NRCS 2008; Wetlands - Digitized NRM; Final - Jacobs Site Verification; 4/7/09; B. Matsumoto;



Matchline (Figure 3c)

US Highway 101



US Army Corps of Engineers

Jurisdictional Delineation Pursuant to Section 10 of the Rivers and Harbors Act (RHA) and Section 404 of the Clean Water Act (CWA): The project site is located directly east of Highway 101 at the Sir Francis Drake Boulevard exit. It spans from just south of Sir Francis Drake Boulevard to approximately 1,200 feet north of Sir Francis Drake Boulevard (APNs 018-171-01, -02, -16, -17, -18, -19, -35; 018-172-01, -02, -16, -17, -19, -21; 018-191-05, -06, -07, -08, -09, -25, and -27).



Study Area Boundary



Wetlands subject to Section 10 RHA and Section 404 CWA



Open Water subject to Section 10 RHA and Section 404 CWA



Wetlands subject to Section 404 CWA

Section 10 of the RHA and Section 404 of the CWA Jurisdiction Verified only within the designated Study Area Boundary.

File No: 2009-00131N

Date: June 2, 2009

Page 2 of 3

Sir Francis Drake Boulevard

Matchline (Figure 3a)



Project Study Area

Scale: 1 inch = 75 feet

Jurisdictional Waters of the U.S.

Central Marin Ferry Connection Project

Larkspur, CA

Figure 3b



US Army Corps of Engineers

Jurisdictional Delineation Pursuant to Section 10 of the Rivers and Harbors Act (RHA) and Section 404 of the Clean Water Act (CWA): The project site is located directly east of Highway 101 at the Sir Francis Drake Boulevard exit. It spans from just south of Sir Francis Drake Boulevard to approximately 1,200 feet north of Sir Francis Drake Boulevard (APNs 018-171-01, -02, -16, -17, -18, -19, -35; 018-172-01, -02, -16, -17, -19, -21; 018-191-05, -06, -07, -08, -09, -25, and -27).



Study Area Boundary



Wetlands subject to Section 10 RHA and Section 404 CWA



Open Water subject to Section 10 RHA and Section 404 CWA



Wetlands subject to Section 404 CWA

Section 10 of the RHA and Section 404 of the CWA Jurisdiction Verified only within the designated Study Area Boundary.

File No: 2009-00131N

Date: June 2, 2009

Page 3 of 3



Matchline (Figure 3b)



Project Study Area  
Scale: 1 inch = 75 feet

Jurisdictional Waters of the U.S.  
Central Marin Ferry Connection Project  
Larkspur, CA

Figure 3c



TAM

Central Marin Ferry Connection

Marin County, California

Phase 1

FINAL WETLAND DELINEATION REPORT

Version 2, May 2009

TAM Project No.: C-FY05/06-007

Jacobs Project No.: CB701729

SUBMITTED BY:

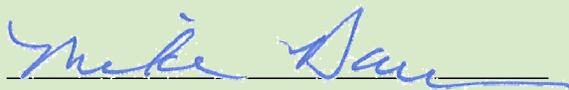


Lauren Abom  
Senior Environmental Planner

May 4, 2009

Date

REVIEWED BY:



Mike Davis  
National Environmental Practice Group Leader

May 4, 2009

Date

APPROVED BY:



Kai Chan, PE  
Transportation Program Manager

May 4, 2009

Date



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## 1 Executive Summary

NRM Environmental Consulting, LLC (NRM) conducted a delineation of waters of the U.S., including wetlands, under the jurisdiction of the U.S. Army Corps of Engineers (Corps) pursuant to Sections 404 and 404(f) of the Clean Water Act, occurring in the Central Marin Ferry Connection (CMFC) Study Area, herein referred to as the Study Area. The Study Area is located just east of the intersection of Sir Francis Drake Boulevard (SFDB) and U.S. Highway 101 in Larkspur, CA.

The delineation study was conducted on April 17 and 24, and July 2, 2008 using Corps-approved methods. The delineation resulted in the identification of approximately 1.021 acres of jurisdictional wetlands and other waters of the United States within the approximately 6.188-acre Study Area, which includes approximately:

0.608-acre of Northern Coast Salt Marsh

0.062-acre Tide Channel

0.351-acre of Open Water

In addition, “other waters”, delineated as “open water” and “tide channel”, were also found to be Section 10 Navigable Waters under the Rivers and Harbors Act of 1899, resulting in 0.413-acre of Section 10 Navigable waters within the Study Area.

A verification visit was conducted by Brian Matsumoto of the Corps, and Phillip Peters of Jacobs on April 7, 2009. As a result of the verification visit, the following modifications were made to the final report:

0.009-acre of delineated wetland (northern coastal salt marsh) along the eastern side of the Study Area was converted to an “other water” (tide channel). This modification increased the acreage of jurisdictional waters subject to Section 10.

0.012-acre of delineated wetland (northern coastal salt marsh) along the southwestern boundary of the Study Area was converted to an “other water” (open water). This modification increased the acreage of jurisdictional waters subject to Section 10.

There was no increase or decrease in the total jurisdictional acreages of wetlands and “other waters” as a result of the field verification.

This report presents the final determination of jurisdictional wetlands and waters of the U.S. that were identified in the Study Area at the time of the field verification visit on April 7, 2009.

## 2 Introduction

NRM Environmental Consulting, LLC conducted a delineation of waters of the U.S., including wetlands, under the jurisdiction of the Corps pursuant to Sections 404 and 404(f) of the Clean Water Act, occurring within the CMFC Study Area.

### 2.1 Definitions

Certain terms used throughout this report have specific meanings that relate to the wetland delineation process, as specified by the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the new *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (the “Regional Supplement”). These terms are described briefly below. Additional terms and their definitions are provided in Appendix D.

#### 2.1.1 Section 404 – Clean Water Act

“Waters of the U.S.” is the encompassing term for areas that qualify for federal regulation under Section 404 of the Clean Water Act, which includes “wetlands” and “other” waters of the U.S. For regulatory purposes, wetlands are defined as:

*...areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. (CFR 328.3, CFR 230.3).*

Wetlands under Corps jurisdiction must exhibit the following field indicators:

**A prevalence of hydrophytic vegetation.** That is, water-loving species with "obligate," "facultative wetland," or "facultative" wetland indicator status (Reed, 1988).

**Hydric soils.** Hydric soils listed by the U.S. Department of Agriculture Soil Conservation Service (Natural Resources Conservation Service [NRCS]) and unclassified soils that are saturated or flooded during the growing season long enough to develop hydric soil indicators caused by soil morphogenesis.

**Wetland hydrology.** Permanent or periodic inundation or soil saturation to the surface for greater than 14 consecutive days (Regional Supplement 2006).

“Other waters of the U.S.” refers to unvegetated waterways and other water bodies with a defined bed and bank, such as tide channels, drainages, creeks, rivers, and lakes. This approximately translates to the bank-to-bank portion of tidal water bodies, up to the high tide line. Other waters typically lack hydrophytic vegetation and may also lack hydric soils.

### 2.1.2 Section 10 – Rivers and Harbors Act

The Corps also regulates Section 10 of the Rivers and Harbors Act of 1899, which is designed to protect “navigable waters” of the United States, which are defined as:

*"those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce." (33 CFR Part 329)*

Activities requiring Section 10 permits include structures (e.g., piers, wharfs, breakwaters, bulkheads, jetties, weirs, transmission lines, etc.) and work such as dredging or disposal of dredged material, excavation, filling, or other modifications to the navigable waters of the United States.

## 2.2 Regulatory Background

Section 404 of the Clean Water Act authorizes the Secretary of the Army, acting through the Corps to issue permits for the discharge of dredged or fill material into waters of the U.S. The objective of the Clean Water Act is to maintain and restore the chemical, physical, and biological integrity of waters of the U.S. (33 CFR Part 328, Section 328.4).

The Corps developed field methods for identifying the location and extent of jurisdictional wetlands (a subset of waters of the U.S.) using the Corps Wetland Delineation Manual, which allows landowners to retain specialists to prepare wetland delineation reports. The Corps is responsible for verifying wetland delineations.

Two U.S. Supreme Court decisions have been handed down in recent years regarding the Corps’ jurisdiction of wetlands and other waters of the U.S.

- 1) In 2001, the Solid Waste Agency of Northern Cook County (SWANCC) decision clarified that the Corps can not regulate “isolated wetlands” solely on the basis that they provide use for migratory birds. Isolated wetlands are defined as not having an apparent surface water connection to perennial waters of the U.S. and thus are geographically isolated.
- 2) The combined Rapanos and Carabell decisions of 2007 address the issue of what defines a “navigable water of the U.S.”. It was determined that documentation of a significant nexus to a traditional navigable water (TNW) (perennial stream, estuaries, etc.) may be required in order for a water of the U.S. to fall under jurisdiction of the Corps. The decisions also defined the term relatively permanent water (RPW) and determined that a water of the U.S. must be subject to approximately three months of flow, at least seasonally, to be determined a RPW. As a result of the decision, a memorandum was prepared by the Corps and U.S. Environmental Protection Agency (EPA) which defined what determinations may require a significant nexus analysis, what continues to be regulated by the Corps without the need for a significant nexus analysis, and what features previously regulated by the Corps do not generally fall under their jurisdiction any longer (EPA 2007).

According to the Corps and EPA memorandum, the following potential wetland and/or water features will be required to prove a significant nexus to a TNW:

- Non-navigable tributaries that are not relatively permanent

- Wetlands adjacent to non-navigable tributaries that are not relatively permanent

- Wetlands adjacent to, but that do not directly abut a relatively permanent non-navigable tributary (EPA 2007)

In addition, the Corps will generally not assert jurisdiction over the following features:

- Swales or erosion protection features

- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water (EPA 2007)

The Corps will continue to assert jurisdiction over the following waters:

- TNWs

- Wetlands adjacent to TNWs

- Non-navigable tributaries of TNWs that are relatively permanent, where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)

- Wetlands that directly abut such tributaries

### 2.3 Project Description and Location

The proposed project is located in the City of Larkspur within Marin County, California. The Study Area encompasses approximately 6.188 acres at and adjacent to the SFDB and U.S. Highway 101 interchange (PM 14.7 to PM 15.3). The proposed project would occur in the city of Larkspur within the San Rafael 7.5-minute United States Geological Survey (USGS) Quadrangle.

The CMFC Project is located adjacent to northbound U.S. Highway 101 (Figure 1). A portion of the Study Area lies within the Sonoma Marin Area Rail Transit (SMART) right-of-way. The project's goal is to create a new multi-use pathway intended to further promote non-motorized commute alternatives and enhanced recreational travel. The pathway will be generally located within the SMART right-of-way and generally follows the County's north-south greenway. The proposed project is of vital importance to central Marin as it will provide safe, direct, and convenient pedestrian/bicycle access between local transit facilities such as the future SMART station and the existing Larkspur Ferry Terminal, as well as access to schools, business centers, and residential communities.

The Transportation Authority of Marin (TAM) proposes to construct a new multi-use pathway to serve pedestrians and bicyclists in the area of the SFDB and U.S. Highway 101 interchange. The

proposed project will extend the Cal Park pathway, located north of SFDB, south to the existing multi-use path south of SFDB.

Other elements of the project include:

Construction of new overcrossing of SFDB for the multi-use path

Construction of a new stair structure south of SFDB to connect the new overcrossing with the multi-use path

Construction of new access ramps and repaving of existing multi-use path south of SFDB

Construction of a circular roundabout and elevated path above the tidal marsh area on the north bank of Corte Madera Creek to connect the new overcrossing to the existing multi-use path

Construction of a new access ramp to the new overcrossing on the north side of SFDB

Pouring of new sidewalks and curbs on the north side of SFDB

Connection of the new multi-use path to the Cal Park pathway

Installation of signage, striping, lighting, handrails, truncated domes and/or bollards to enhance the function and safety of the path

The Study Area intersects, or is made up of portions of each of the following Marin County parcels:

ASSESSOR'S PARCEL NUMBER			
018-191-07	018-191-27	018-171-01	018-171-17
018-191-05	018-191-25	018-172-18	018-172-21
018-191-06	018-172-19	018-191-08	018-172-02
018-171-35	018-171-02	018-191-09	018-172-01
018-171-18	018-171-19	018-171-16	018-172-16

Source: <http://marinmapims.marinmap.org>

### Contact Information

Project Applicant:

TAM (750 Lindaro Street, Suite 200 San Rafael, CA 94901)

Property Owners:

Sonoma Marin Area Rail Transit (750 Lindaro Street, Suite 200, San Rafael, CA 94901)

Caltrans (111 Grand Avenue, P.O. Box 23660, Oakland, CA 94623)

### 3 Methods

Wetlands were delineated using the 1987 Corps Wetland Delineation Manual and the 2006 Arid West Regional Supplement (Environmental Laboratory 2006). Under this method, an area must meet criteria for hydrophytic vegetation, hydric soils, and wetland hydrology to be identified as a wetland. Specific details of the delineation methods are described below.

#### 3.1 Office Preparation

Before field surveys were conducted, the following information was reviewed:

- Hydric soils information from the Natural Resources Conservation Service (NRCS 2007)

- National Wetlands Inventory data from the U.S. Fish and Wildlife Service Wetlands Mapper database (2007)

- Custom Soil Resource Report for Marin County from Natural Resources Conservation Service (NRCS 2007)

- Topographic maps and aerial photographs

#### 3.2 Field Survey Dates and Methods

Wetland delineation field surveys were conducted using the Routine Onsite Determination Method, as described in the Corps Wetland Delineation Manual. The field surveys were conducted on April 17, April 24, and July 2, 2008, by Misha Seguin, Botanist and certified wetland delineator, and Shannon Fiala, Biologist.

The primary focus of the field survey was to determine which areas may potentially qualify as jurisdictional wetlands and other waters and to delineate and map the jurisdictional limits of each wetland and water type.

An iterative process was used to determine the location and preliminary boundary of waters of the U.S., including wetlands. The first step was to review topographic maps and aerial photographs to identify potential wetland drainage patterns to be investigated in the field. The entire Study Area was investigated on foot. Each wetland and drainage signature identified on the aerial photographs and topographic maps was investigated in the field for the presence of hydrophytic vegetation. Hydrophytic vegetation was determined based on *The Jepson Manual, Higher Plants of California* (Hickman 1993) and standard Corps methods for determining the wetland indicator status of plant species (Reed 1988; Kartez 1997). Refer to Appendix D for definitions of the wetland indicator statuses used in this report.

Sites supporting a prevalence of hydrophytes (water-loving plants) were further examined for indicators of wetland hydrology and hydric soils. Soil types were determined based on Natural Resource Conservation Service maps for the Study Area (NRCS 2007). Soil profiles were studied

using hand-excavated holes. Soil texture, matrix and redox colors, and the presence of subsoil layers impervious to water infiltration were documented. Matrix color was determined from moist soil peds (a unit of soil that sticks together into a specific structure) using Munsell Soil Color Charts (Munsell 1994). The alphanumeric soil descriptions provided below are based on those in the Munsell soil color chart. Hydric soil criteria were based on the National Technical Committee for Hydric Soils, as recommended by Environmental Laboratory (Environmental Laboratory 1987).

### **3.3 Data Collection**

During the field investigation, data on the vegetation, soils, and hydrologic conditions were recorded at representative sites using the Regional Supplement Corps Wetland Determination Data Forms (Appendix C). These datasheets are cross-referenced to the wetland delineation maps presented in Appendix A. Datasheets are included to document field conditions and assist the Corps with verifying the wetland delineation. Photographs of the site taken during the delineation are presented in Appendix B. Where appropriate, both a wetland and upland point was recorded to support the wetland boundary determination. Data points taken within the wetland are labeled with an “a” while upland points are labeled with a “b”, (e.g. 1a).

### **3.4 Mapping and Acreage Calculations**

Wetland boundaries for each wetland were determined in the field. The rationale for the wetland-upland boundaries in each habitat type was determined by collecting data at paired sample points where appropriate, as described in Section 3.3, above, and then extrapolating the data to similar wetland types. The last point on the gradient where evidence of all three parameters was present determined the upper limits of the wetland boundaries. Once boundaries were determined, they were mapped in the field using a sub-meter accuracy Global Positioning System (GPS) unit. Each wetland and water feature was identified by type (salt marsh, open water, or tide channel) and assigned a number chronologically as they were identified.

All acreage calculations were conducted using ArcView Geographic Information System (GIS) software based on the GPS and GIS data collected for this project.

## 4 Results

### 4.1 Environmental Setting

The Study Area runs south to northeast in a highly urbanized area between U.S. Highway 101 and the Larkspur Landing Shopping Center and the Larkspur Landing Ferry Terminal. It is divided by SFDB, which runs east to west underneath U.S. Highway 101. The far northern part of the Study Area is bounded by steep slopes, creating a small valley. As the Study Area continues south, it opens up to a flat terrace, is crossed by SFDB, and transitions into northern coastal salt marsh habitat along the north bank of Corte Madera Creek. The Study Area is bounded at its southern end by the confluence of Corte Madera Creek and the San Francisco Bay. Railroad tracks run the length of the Study Area, resulting in a disturbed overgrown landscape with a raised bed constructed of fill material supporting a predominantly invasive plant population, with species such as French broom (*Genista monspessulana*).

#### 4.1.1 Climate

The Study Area ranges in elevation from 80 feet above sea level to mean sea level. Annual precipitation ranges from 20 to 30 inches and mean annual air temperature is 55 to 66 degrees Fahrenheit. There are approximately 270 to 350 frost free days in the Study Area (NRCS 2007).

#### 4.1.2 Soils

According to the U.S. Department of Agriculture Soil Conservation Service's Soil Survey for Marin County, the following soil type occurs within the Study Area (NRCS 2007):

**Xerorthents-Urban Land Complex, 0 to 9 Percent Slopes.** This soil type is found on tidal flats and valley floors at elevations from 0 to 500 feet. The typical depth to the restrictive layer, as well as the water table, is more than 80 inches and there is no frequency of flooding or ponding. This soil is considered to be a hydric soil in Marin County when found in salt marshes and is found throughout the Study Area.

#### 4.1.3 Hydrology

Hydrology is supported by seasonal rain and runoff in the northern section of the Study Area and by the confluence of Corte Madera Creek and San Francisco Bay in the southern section of the Study Area. A portion of the Study Area is located within the high tide line of the San Francisco Bay.

#### 4.1.4 Vegetation

The Study Area is divided from east to west by SFDB, which also acts as an approximate boundary between the salt marsh habitat in the southern section (south of SFDB) and the more disturbed upland habitats in the northern section of the Study Area (north of SFDB). Vegetation types observed within the Study Area (in order of prevalence) include ruderal/developed, northern coastal salt marsh, and landscaped.

Ruderal/developed vegetation was dominated by non-native species including French broom (*Genista monspessulana*), sweet fennel (*Foeniculum vulgare*), and annual grasses such as oatgrass (*Avena* sp.), and rattlesnake grass (*Briza maxima*). The northern coastal salt marsh habitat was dominated by pickleweed (*Salicornia virginica*), saltgrass (*Distichlis spicata*), and fleshy jaumea (*Jaumea carnosa*). The landscaped areas were dominated by iceplant (*Carpobrotus edulis*), redwoods (*Sequoia sempervirens*), and ornamental forbs. Landscaped areas are not discussed further in this report because they are not identified as a natural community (Holland 1986).

#### 4.1.5 Land Uses

The southern portion of the Study Area is open to the public and has a pedestrian boardwalk built through the northern coastal salt marsh habitat, which links the boardwalk and path beneath U.S. Highway 101 to a path along Corte Madera Creek on the west side of U.S. Highway 101. At the time of the field survey a portion of the northern section of the Study Area was being used by the Marin County Airport for customer parking. The northern section of the Study Area is a historical railroad route and still has the raised railroad bed running through it.

## 4.2 Habitat Types

The Study Area supports the following habitat types:

- One wetland habitat type (northern coastal salt marsh)
- Two “other waters” of the U.S. (open water, tide channel)
- One upland habitat (ruderal/developed)

The following habitat type descriptions apply only to those habitat types (wetlands and waters) where data was recorded to determine potential Corps jurisdiction.

### 4.2.1 Wetland Habitats

As defined in Section 2.1, wetlands are areas that are inundated or saturated by water at a frequency and duration sufficient to support wetland vegetation. The vegetation, hydrology, and soil conditions encountered at each wetland habitat type are described below.

**Northern Coastal Salt Marsh.** Northern coastal salt marsh, as described in Holland (1986) is an herbaceous and suffrutescent, salt-tolerant hydrophytic vegetation type found along the inland margins of bays, lagoons, and estuaries. This wetland type was found in one location in the Study Area (Appendix A). The northern coastal salt marsh habitat was found at the confluence of Corte Madera Creek and San Francisco Bay. Data collected at sample points for seasonal wetlands are summarized below and are presented in more detail on the Wetland Delineation Data Forms in Appendix C. Representative photographs are presented in Appendix B. See Table 5-1 below for more detailed information.

**Vegetation.** Dominant vegetation found in this wetland habitat included pickleweed (OBL), fleshy jaumea (OBL), saltgrass (FACW), and Frankenia (*Frankenia salina*, FACW).

**Hydrology.** Wetland hydrology was indicated by observed water and saturation in the soil pits, as well as a wrack line of debris indicating the high tide line.

**Soils.** Soils found in this wetland type are made up of clay and have a matrix value of 2 and a chroma of 1 or 2, which are hydric soil indicators. In addition, soils showed iron reduction through concentrations throughout the matrix, a primary hydric soil indicator.

**Other Waters of the U.S.** Under Section 328.3 of the federal Clean Water Act, “other waters” includes lakes, rivers, and streams, including intermittent streams (33 CFR 328). These areas are differentiated from wetlands because they do not support a prevalence of wetland vegetation (see wetland definition in Section 4.2.1, above) either because the water is ponded at a depth that precludes the growth of vegetation or the flow of water and/or soil type does not allow for saturated soil conditions, which promote the growth of wetland vegetation (e.g., perennial and intermittent streams). The limit of jurisdiction for “other waters” extends to the high tide line mark (unless wetlands are adjacent), which is “the line of intersection of the land with the water's surface at the maximum height reached by a rising tide.” (33 CFR 328).

As a result of the Rapanos and Carabell decisions, the definition of “other waters” has been narrowed. Jurisdictional “other waters” must be a TNW, a RPW, or if the feature is neither of those, must have a significant nexus to a TNW.

**Open Water/Tide Channel.** Open water, including two tide channels, was identified at the southern end of the Study Area. The tide channel originates from Corte Madera Creek and forks as it flows into the northern coastal salt marsh. The tidal channel ranges in width from approximately 5 feet to 17 feet wide (Appendix B).

## 5 Conclusions

The wetland delineation survey identified approximately 1.021 acres of potentially jurisdictional wetlands and “other waters” within the 6.188-acre CMFC Study Area. A total of 0.413 acre of open waters are also jurisdictional under Section 10 Rivers and Harbors Act. Table 5-1 below identifies the preliminary jurisdictional feature, its size, and discussion for why the feature may meet current jurisdictional standards resulting from the SWANCC, Rapanos, and Carabell court decisions.

**Table 5-1. Total Final Jurisdictional Wetlands and Waters of the U.S. in the Study Area**

FEATURE TYPE	LABEL	ACREAGE	RAPANOS/ CARABELL/ SWANCC COMMENTS	SIGNIFICANT NEXUS DETERMINATION
<b><i>Wetland Features</i></b>				
Northern Coastal Salt Marsh	1 (SM)	0.608	RPW	Abuts a TNW
<i>Total Wetlands</i>		0.608		
<b><i>Waters Features</i></b>				
Tide Channel*	2 (TC)	0.062	NNT	Drains into a TNW
Open Water*	3 (OW)	0.351	TNW	Drains into San Francisco Bay
<i>Total Waters</i>		0.413		
<i>Total Wetlands &amp; Waters</i>		1.021		
TNW: Traditional Navigable Water NNT: Non-navigable Tributary RPW: Relatively Permanent Water * Navigable waters also regulated under Section 10 under the Rivers and Harbors Act				

The wetland habitats encountered within the Study Area were considered jurisdictional wetlands because of the observed dominance of hydrophytic vegetation, field observations of wetland hydrology indicators (direct and indirect), and field observations of hydric soil indicators. Waters of the U.S. are considered jurisdictional, as they exhibited a high tide line, are RPWs, and are considered to be a TNW. Upland habitats (ruderal/developed) were considered non-jurisdictional because they do not meet all three wetland criteria, they are dominated by upland plant species, and/or they do not exhibit wetland hydrology or hydric soil indicators.

A verification visit was conducted by Brian Matsumoto of the Corps, and Phillip Peters of Jacobs on April 7, 2009. As a result of the verification visit, the following modifications were made to the final report:

0.009-acre of delineated wetland (northern coastal salt marsh) along the eastern side of the Study Area was converted to an “other water” (tide channel). This modification increased the acreage of jurisdictional waters subject to Section 10.

0.012-acre of delineated wetland (northern coastal salt marsh) along the southwestern boundary of the Study Area was converted to an “other water” (open water). This modification increased the acreage of jurisdictional waters subject to Section 10.

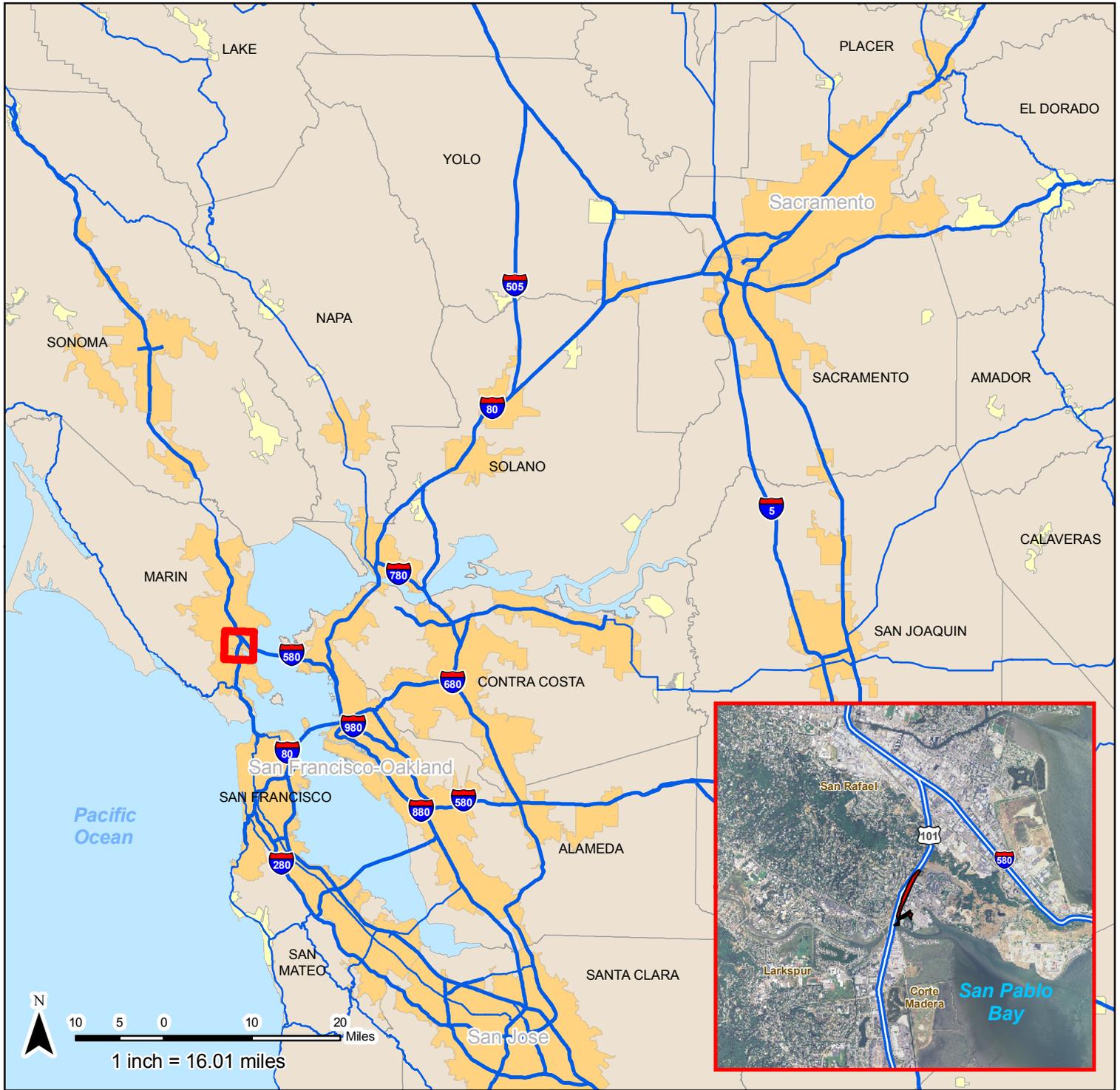
There was no increase or decrease in the *total* jurisdictional acreage of wetlands and “other waters” as a result of the field verification.

This report presents the final determination of jurisdictional wetlands and waters of the U.S. that were identified in the Study Area at the time of the field verification visit on April 7, 2009.

## 6 References

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- U.S. Fish and Wildlife Service. 2007. *National Wetlands Inventory*. Available online at <http://www.fws.gov/nwi>, accessed August 2008.

## Appendix A. Figures

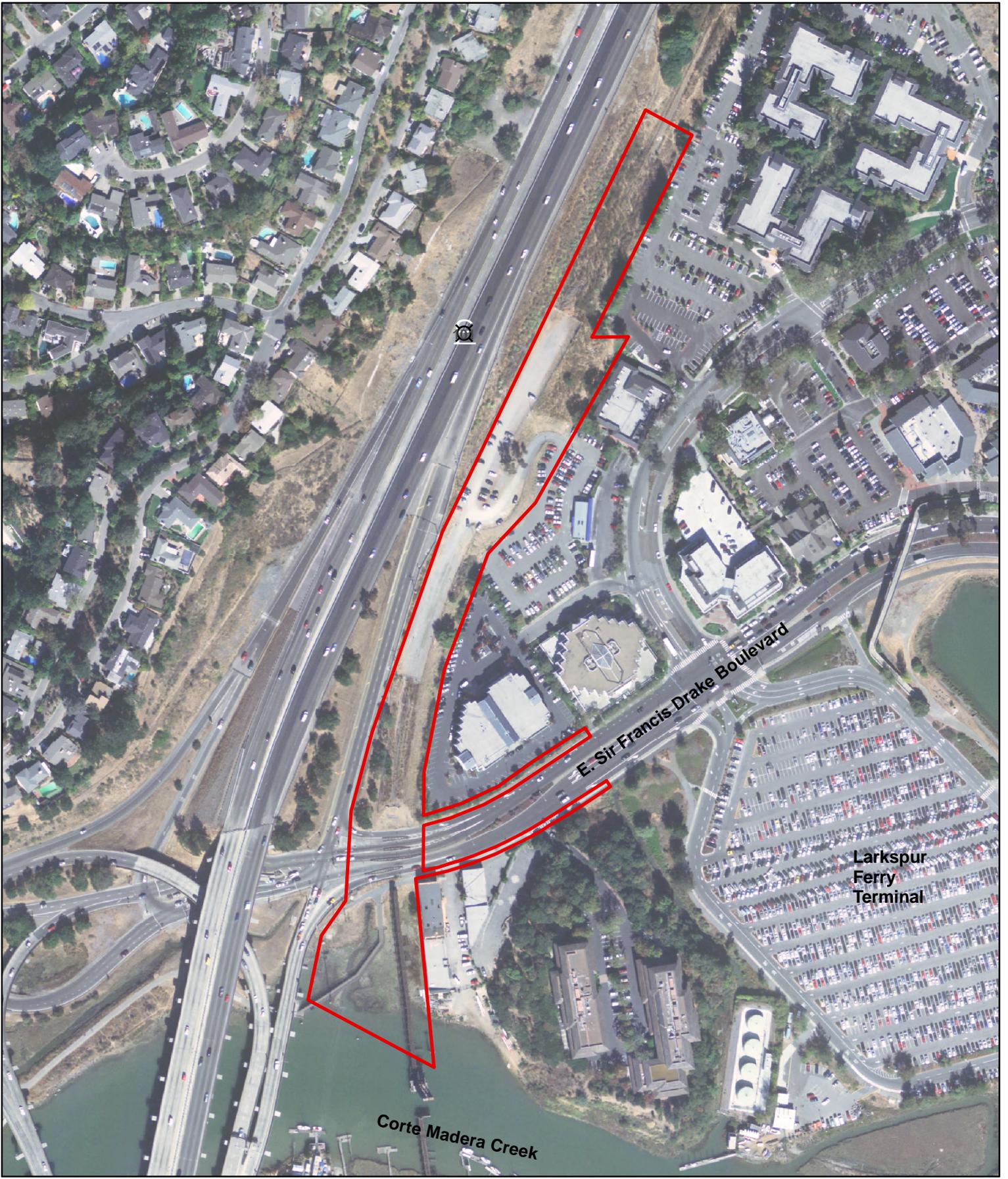


- Project Location
- Highways
- County boundaries
- Urban Areas

Data Sources: Background: USA Base Map;  
 Highways & Urban Boundaries: ESRI;  
 Project location: Digitized by NRM;  
 Inset-Background: 2003 USGS Airphotos SF Bay Area;

**Central Marin Ferry Connection**  
 November 25, 2008

**Project Vicinity**  
**Figure 1**



 Project Study Area

Source: Aerial- 2003 USGS Airphotos;  
USGS San Rafael Quad- CASIL o\_sw030;  
Project Boundary - Jacobs Carter Burgess

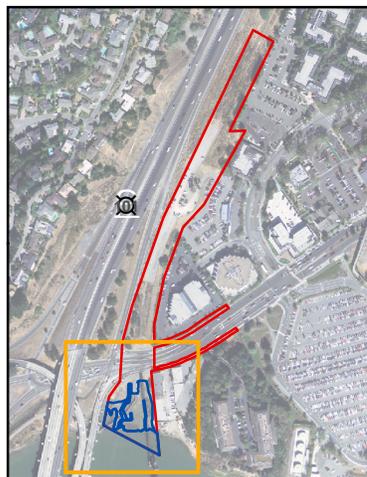
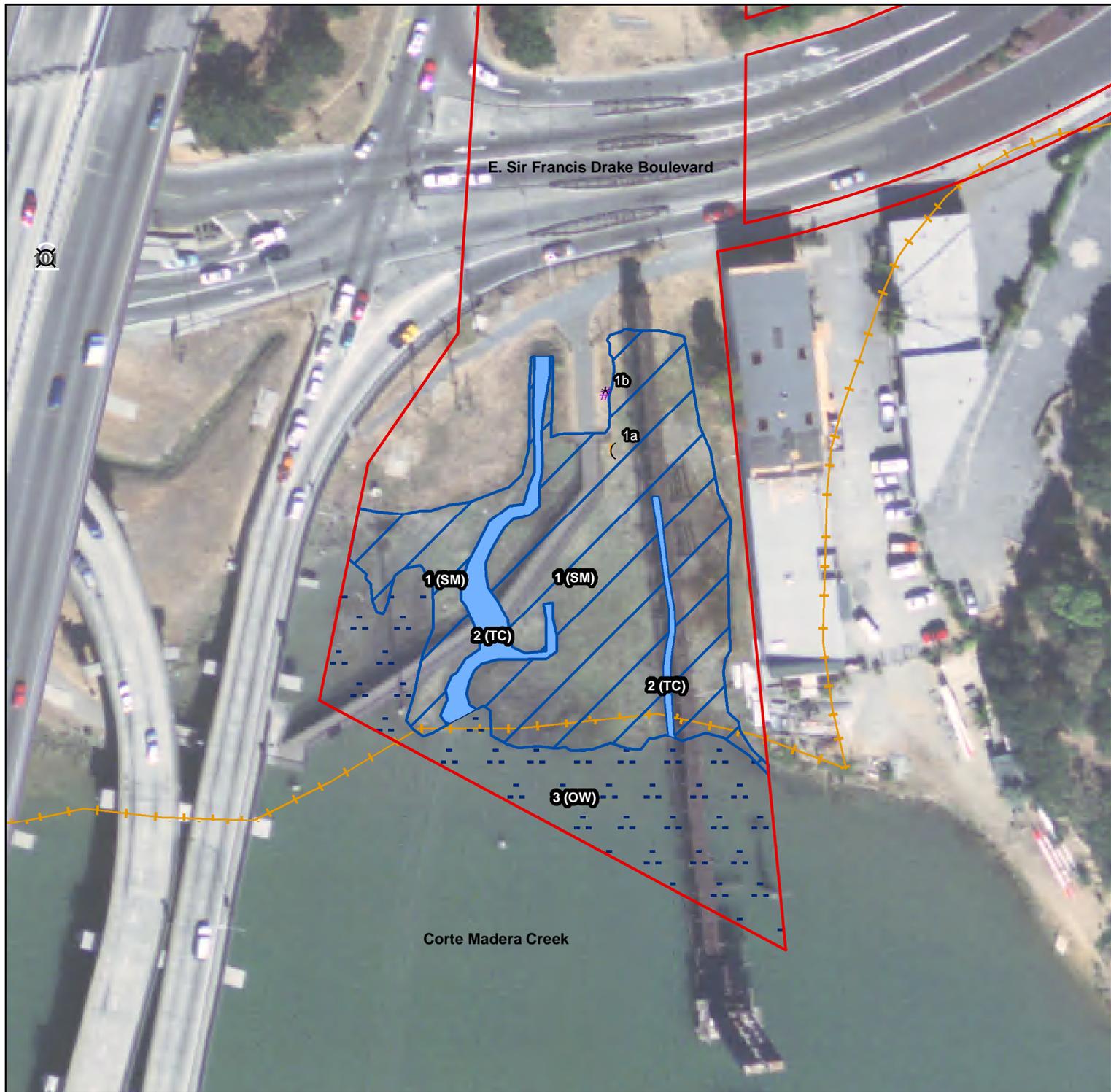


1 inch equals 250 feet



**Figure 2. Project Study Area**  
Central Marin Ferry Connection Project  
Larkspur, CA

May 1, 2009



**Final Jurisdictional Wetlands and Waters**

-  Open Water (OW) [Subject to Sect. 10 & 404]
-  Salt Marsh (SM) [Subject to Sect. 404]
-  Tide Channel (TC) [Subject to Sect. 10 & 404]

**Data Points**

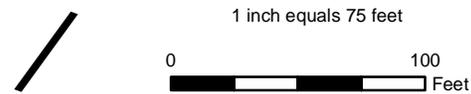
-  Upland Point
-  Wetland Point

**NRCS Soils Layer**

-  204 - Xerorthents-Urban Land
-  Study Area

**Figure 3.**  
**Final Determination of Jurisdictional**  
**Wetlands and Waters of the U.S.**  
 Central Marin Ferry Connection Project  
 Larkspur, CA

May 1, 2009



Source: Aerial- 2003 USGS Airphotos; USGS San Rafael Quad- CASIL o\_sw030; Project Boundary - Jacobs Carter Burgess; Soils - NRCS 2008; Wetlands - Digitized NRM, Final - Jacobs, Site Verification- 4/7/09 (B. Matsumoto).



## Appendix B. Site Photographs

Northern  
Coastal Salt  
Marsh  
*Photo taken  
07/02/08*



Northern  
Coastal Salt  
Marsh

*Photo taken  
07/02/08*



Northern Coastal Salt Marsh (facing north from waters edge)

*Photo taken 07/02/08*



Hydric Soil from Northern Coastal Salt Marsh

*Photo taken 07/02/08*



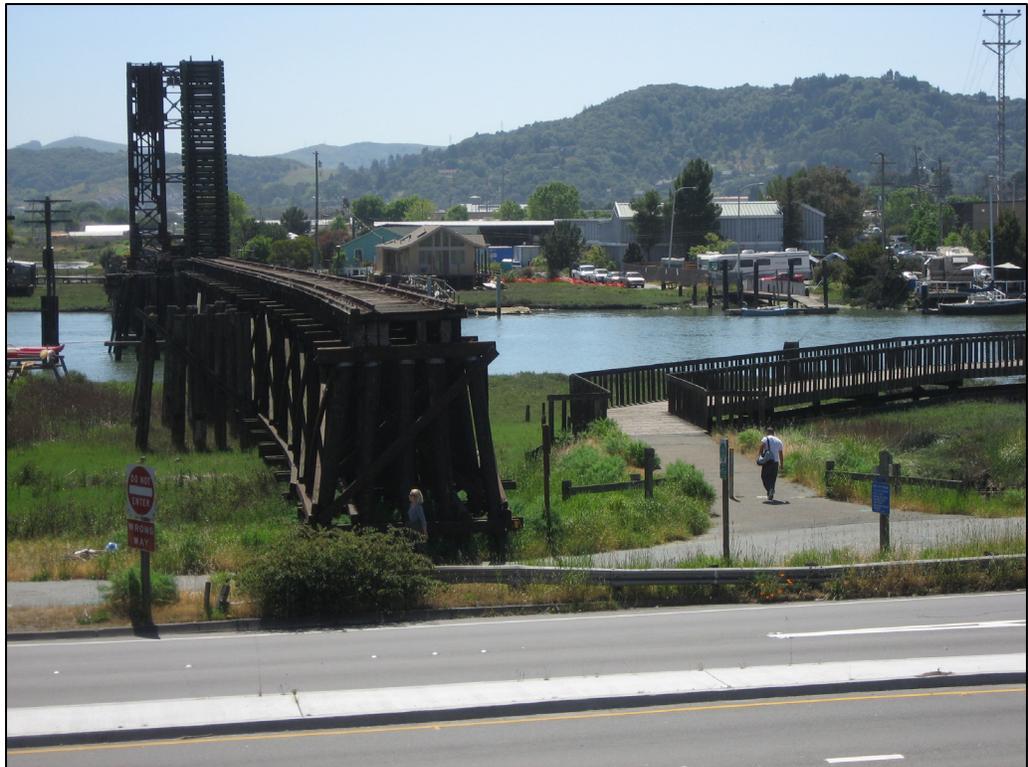
Railroad tracks and weedy plant species (facing north into Study Area)

*Photo taken 04/17/08*



Study Area south of Sir Francis Drake Boulevard

*Photo taken 04/17/08*



## Appendix C. Wetland Delineation Data Forms

**WETLAND DETERMINATION DATA FORM - Arid West Region**

Project/Site: Central Marin Ferry Connection (CMFC) City/County: Larkspur, Marin County Sampling Date: July 2, 2008  
 Applicant/Owner: Transportation Authority of Marin (TAM) State: CA Sampling Point: 1a (SM)  
 Investigator(s): Misha Seguin, Shannon Fiala - NRM Section, Township, Range: Punta de Quentin, N/A, N/A  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0%  
 Subregion (LRR): C - Mediterranean California Lat: 37°56'39.834"N Long: 122°30'49.578"W Datum: NAD 83  
 Soil Map Unit Name: Xerorthents-Urban Land Complex, 0 to 9% slopes NWI classification: Hydric - salt marshes

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation  Soil  or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation  Soil  or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="radio"/> No <input type="radio"/>
Remarks: salt marsh (SM).	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	
1.				
2.				
3.				
4.				
Total Cover:				
<b>Sapling/Shrub Stratum</b>				
1.				
2.				
3.				
4.				
5.				
Total Cover:				
<b>Herb Stratum</b>				
1. <i>Distichlis spicata</i>	91	Yes	OBL	
2.				
3.				
4.				
5.				
6.				
7.				
8.				
Total Cover:	91 %			
<b>Woody Vine Stratum</b>				
1.				
2.				
Total Cover:				
% Bare Ground in Herb Stratum	9 %	% Cover of Biotic Crust		

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

Total % Cover of:		Multiply by:	
OBL species	91	x 1 =	91
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	91	(A)	91 (B)
Prevalence Index = B/A =			1.00

**Hydrophytic Vegetation Indicators:**

Dominance Test is >50%

Prevalence Index is ≤3.0<sup>1</sup>

Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** Yes  No

Remarks: Sample point located in dense distichlis and mudflat area.

**SOIL**

Sampling Point: 1a (SM)

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture <sup>3</sup>	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3"	organic matter							
3-12	5Y 2/1	95	5Y 4/4	5	RM	M	clay	Black streaking organic matter

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix.    <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.  
<sup>3</sup>Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input checked="" type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)		<b>Indicators for Problematic Hydric Soils:<sup>4</sup></b> <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)	
---	--	--	--	--	--

<sup>4</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?**    Yes     No

Remarks: Soil sample located in salt marsh with evident signs of hydric soils

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)	

**Field Observations:**

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____
Water Table Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 8"
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 0"

**Wetland Hydrology Present?**    Yes     No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM - Arid West Region**

Project/Site: Central Marin Ferry Connection (CMFC) City/County: Larkspur, Marin County Sampling Date: July 2, 2008  
 Applicant/Owner: Transportation Authority of Marin (TAM) State: CA Sampling Point: 1b  
 Investigator(s): Misha Seguin - NRM Section, Township, Range: Punta de Quentin, N/A, N/A  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0%  
 Subregion (LRR): C - Mediterranean California Lat: 37°56'40.128"N Long: 122°30'49.632"W Datum: NAD 83  
 Soil Map Unit Name: Xerorthents-Urban Land Complex, 0 to 9% slopes NWI classification: Hydric - salt marshes

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation  Soil  or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation  Soil  or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: <u>Vegetation is located along an active pedestrian path and was mowed prior to site visit. Soil is made up of fill material from pedestrian path.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>50.0 %</u> (A/B)
4. _____				<b>Prevalence Index worksheet:</b>	
Total Cover: _____ %				Total % Cover of: _____ Multiply by: _____	
<b>Sapling/Shrub Stratum</b>				OBL species	<u>  </u> x 1 = <u>0</u>
1. _____				FACW species	<u>20</u> x 2 = <u>40</u>
2. _____				FAC species	<u>  </u> x 3 = <u>0</u>
3. _____				FACU species	<u>5</u> x 4 = <u>20</u>
4. _____				UPL species	<u>50</u> x 5 = <u>250</u>
5. _____				Column Totals:	<u>75</u> (A) <u>310</u> (B)
Total Cover: _____ %				Prevalence Index = B/A = <u>4.13</u>	
<b>Herb Stratum</b>				<b>Hydrophytic Vegetation Indicators:</b>	
1. <u>Avena barbata</u>	<u>50</u>	<u>Yes</u>	<u>UPL</u>	<input checked="" type="checkbox"/> Dominance Test is >50%	
2. <u>Distichlis spicata</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>	
3. <u>Foeniculum vulgare</u>	<u>5</u>	<u>No</u>	<u>FACU</u>	<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
4. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
5. _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
6. _____				<b>Hydrophytic Vegetation Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>	
7. _____					
8. _____					
Total Cover: <u>75</u> %					
<b>Woody Vine Stratum</b>					
1. _____					
2. _____					
Total Cover: _____ %					
% Bare Ground in Herb Stratum <u>9</u> %		% Cover of Biotic Crust _____ %			

Remarks: Sample point located upslope of 7a along pedestrian path.

**SOIL**

Sampling Point: 1b

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture <sup>3</sup>	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	2.5Y 4/3	100						gravelly/clay/fill material-moist

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix.    <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.  
<sup>3</sup>Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

<p><b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b></p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) ( <b>LRR C</b> ) <input type="checkbox"/> 1 cm Muck (A9) ( <b>LRR D</b> ) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<p><b>Indicators for Problematic Hydric Soils:<sup>4</sup></b></p> <input type="checkbox"/> 1 cm Muck (A9) ( <b>LRR C</b> ) <input type="checkbox"/> 2 cm Muck (A10) ( <b>LRR B</b> ) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
--	---	--

<sup>4</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Remarks: \_\_\_\_\_

**Hydric Soil Present?**    Yes     No

**HYDROLOGY**

<p><b>Wetland Hydrology Indicators:</b></p> <p>Primary Indicators (any one indicator is sufficient)</p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) ( <b>Nonriverine</b> ) <input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> ) <input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> ) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary Indicators (2 or more required)</u></p> <input type="checkbox"/> Water Marks (B1) ( <b>Riverine</b> ) <input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> ) <input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
--	---	---

**Field Observations:**

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____
Water Table Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): <u>13"</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): <u>10"</u>

**Wetland Hydrology Present?**    Yes     No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: \_\_\_\_\_

## Appendix D. Terminology

Environmental Laboratory (1987) defines the following terms unless otherwise indicated.

Duration (inundation/soil saturation) – the length of time during which water stands at or above the soil surface (inundation), or during which the soil is saturated. As used herein, duration refers to a period during the growing season.

Frequency (inundation or soil saturation) – the periodicity of coverage of an area by surface water or soil saturation. It is usually expressed as the number of years (e.g., 50 years) the soil is inundated or saturated at least once each year during part of the growing season per 100 years or as a one-, two-, five-year, etc., inundation frequency.

Growing season – the portion of the year when soil temperatures at 19.7 inches below the soil surface are higher than biologic zero (5 degrees Celsius). For ease of determination, this period can be approximated by the number of frost-free days.

Herbaceous layer – any vegetation stratum of a plant community that is composed predominantly of herbs.

Hydric soil – a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.

Hydric soil conditions – a situation in which characteristics exist that are associated with soil development under reducing conditions.

Hydrology – the science dealing with the properties, distribution and circulation of water

Hydrophytic vegetation – the sum total of macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.

Indicator – as used in this report, an event, entity, or condition that typically characterizes a prescribed environment or situation; indicators determine or aid in determining whether or not certain stated circumstances exist.

Indicator status – one of the categories (e.g., OBL) that describes the estimated probability of a plant species occurring in wetlands.

Inundation – a condition in which water from any source temporarily or permanently covers a land surface.

Non-wetland – any area that has sufficiently dry conditions that indicators of hydrophytic vegetation, hydric soils, and or wetland hydrology are lacking. They are seldom or never inundated,

or if frequently inundated, they have saturated soils for only brief periods during the growing season, and, if vegetated, they normally support a prevalence of vegetation typically for life only in aerobic soil conditions. As used in this report, any area that is not a wetland, a deepwater aquatic habitat, or other special aquatic site.

Normal circumstances – refers to situations in which the vegetation has not been substantially altered by man’s activities.

Ponded – a condition in which water stands in a closed depression. Water may be removed only by percolation, evaporation, and or transpiration.

Prevalence – refers to the plant community or communities that occur in an area at some point in time.

Rhizosphere – the zone of soil in which interactions between living plant roots and microorganisms occur.

Routine wetland delineation – a type of wetland determination in which office data and or relatively simple, rapidly applied onsite methods are employed to determine whether or not an area is a wetland. Most wetland determinations are of this type, which usually does not require the collection of quantitative data.

Saturated soil conditions – a condition in which all easily drained voids (pores) between soil particles in the root zone are temporarily or permanently filled with water to the soil surface at pressures greater than atmospheric pressure.

Typically adapted – a species being normally or commonly suited to a given set of environmental conditions, due to some morphological, physiological, or reproductive adaptation.

Upland – any area that does not qualify as a wetland because the associated hydrologic regime is not sufficiently wet to elicit development of vegetation, soils, and/or hydrologic characteristics associated with wetlands. Such areas occurring within floodplains are more appropriately termed non-wetlands.

Waters of the United States –

- 1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- 2) All interstate waters including interstate wetlands;

- 3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams and drainages), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which would affect interstate or foreign commerce including such waters:
  - which are or could be used by interstate or foreign travelers for recreational or other purposes; or
  - from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  - which are used or could be used for industrial purposes by industries in interstate commerce;
- 4) All impoundments of waters otherwise defined as waters of the United States interstate commerce;
- 5) Tributaries of waters identified in paragraphs 1 – 4 of this section;
- 6) The territorial sea; and
- 7) Wetlands adjacent to waters (40 CFR 230.3).

Wetland – those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Wetland boundary – the point on the ground at which a shift from wetlands to non-wetlands or aquatic habitats occurs. These boundaries usually follow contours.

Wetland hydrology – the sum total of wetness characteristics in areas that are inundated or have saturated soils for a sufficient duration to support hydrophytic vegetation. Generally speaking, areas that are seasonally inundated and/or saturated to the surface for more than 12.5 percent of the growing season are wetlands. Areas saturated to the surface between 5 and 12.5 percent of the growing season are sometimes wetlands and sometimes uplands. Areas saturated to the surface for less than 5 percent of the growing season are non-wetlands (e.g., 12.5 percent of a 170-day growing season is 21 consecutive days).

**Transportation Authority of Marin  
Central Marin Ferry Connection  
Phase I Project  
Natural Resources Study Report**

**Version 1, April 2010**

TAM Project No.: C-FY05/06-007

Jacobs Agreement No.: CB701729



SUBMITTED BY:

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April 29, 2010

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Date



REVIEWED BY:

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Date



APPROVED BY:

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for

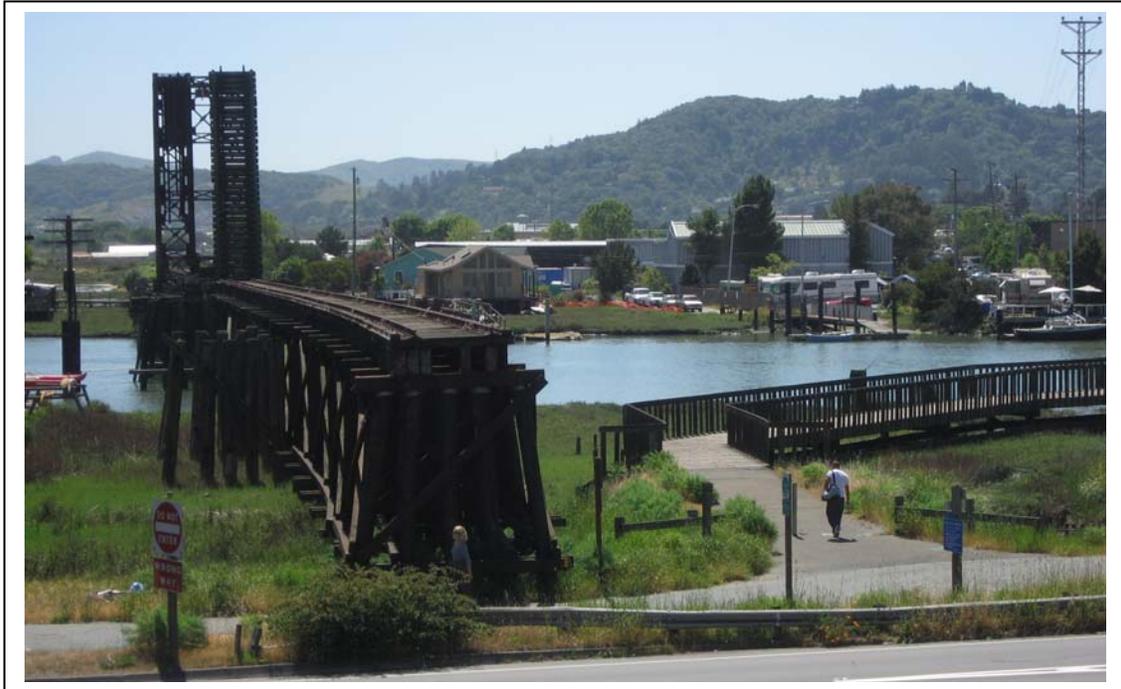
April 29, 2010

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Date



**Central Marin Ferry  
Connection-Phase I**

**NRS**



**Natural Resources Study**

Discussions of Biological Assessments, Wetland Studies, and Mitigation Plan  
West of Northbound Highway 101 at Sir Francis Drake Boulevard  
Marin County, California

*April 2010*



## S.1 Summary of Findings, Conclusions and Determinations

This Natural Resource Study (NRS) report has been prepared as part of the environmental clearance process pursuant to the California Environmental Quality Act (CEQA) for the Central Marin Ferry Connection (CMFC) Phase I project (proposed project). The Transportation Authority of Marin (TAM) is proposing to construct a new multi-use pathway intended to further promote non-motorized commute alternatives and enhanced recreational travel within the City of Larkspur in Marin County, California. The proposed pathway would be located within the Sonoma Marin Area Rail Transit (SMART) and California Department of Transportation (Caltrans) rights-of-way (ROW) east of U.S. Highway 101 (U.S. Highway 101) (postmile [PM] 14.7 to PM 15.3) and would include the East Sir Francis Drake Boulevard (SFDB) interchange.

Special-status species, as defined by CEQA, were evaluated to determine their potential to occur within the Study Area (i.e., the project footprint and adjacent areas that may be affected by construction activities) of the proposed project. A total of five federally threatened or endangered species were identified as having the potential to occur within the Study Area, including the tidewater goby (TWG) (*Eucyclogobius newberryi*), Central California Coast steelhead (CCCS) (*Oncorhynchus mykiss*), Central California Coast Coho salmon (Coho) (*Oncorhynchus kisutch*), California clapper rail (CCR) (*Rallus longirostris obsoletus*), and salt marsh harvest mouse (SMHM) (*Reithrodontomys raviventris*). Additionally, Corte Madera Creek is designated critical habitat for CCCS and Coho, and designated essential fish habitat (EFH) for Coho. The California black rail (CBR) (*Laterallus jamaicensis coturniculus*) was the only state listed threatened or endangered species identified as having potential to occur within the Study Area.

Sensitive natural communities within the Study Area include northern coastal salt marsh wetland (tidal salt marsh), which provides suitable habitat for the CCR, CBR, and the SMHM, and Corte Madera Creek and tidal channels, which provide suitable habitat for TWG, CCCS, and Coho. These communities are located in the southern portion of the Study Area, south of East SFDB. The remaining portion of the project area north of East SFDB is upland habitat composed mainly of ruderal and ornamental plant communities.

## S.2 Natural Communities of Special Concern

### S.2.1 Waters of the U.S.

A wetland delineation was conducted in spring 2008 to determine the presence and extent of waters of the U.S. (WUS) within the Study Area (Appendix A). The delineation identified a

tidal salt marsh and “other” waters (Corte Madera Creek and tidal channels). The delineation identified 0.61 acre (ac) (0.25 hectare [ha]) of tidal salt marsh wetlands, 0.35 ac (0.14 ha) of Corte Madera Creek, and 0.06 ac [0.02 ha] of tidal channels. Following approval of the delineation, the project area was expanded to include an additional 0.68 ac (0.28 ha) within Corte Madera Creek (total=1.03 ac [0.42 ha]).

Project activities within the WUS would involve a geotechnical investigation and construction activities associated with the multi-use pathway. The geotechnical investigation would not result in any permanent loss to WUS; however, it would temporarily impact 0.04 ac (0.02 ha) of tidal salt marsh. The construction of the multi-use pathway would permanently impact 0.03 ac (0.01 ha) of tidal salt marsh and <0.01 ac (<0.01 ha) of “other” waters and would temporarily impact 0.38 ac (0.15 ha) of tidal salt marsh and 0.75 ac (0.31 ha) of “other” waters. The results of the wetland delineation are summarized below in Table 5-1.

Direct impacts to WUS are anticipated due to the installation of a temporary access pathway for the geotechnical investigation, installation of a temporary construction access area for the multi-use pathway, temporary construction activities (i.e., an increase in turbidity), and the placement of permanent structures within the tidal salt marsh. Indirect impacts may occur due to the potential for an increase in human-generated trash and shading from the multi-use pathway, which may result in the subsequent dieback of vegetation (i.e., pickleweed) within the tidal salt marsh.

### **S.2.2 California Central Coast Steelhead Critical Habitat**

Corte Madera Creek is designated as critical habitat for CCCS. Project activities within the critical habitat and EFH would involve construction associated with the multi-use pathway only. The construction is anticipated to result in 0.75 ac (0.30 ha) of temporary impacts to Corte Madera Creek from the potential use of a barge and 0.02 ac (0.01 ha) of permanent impacts to the tidal channels from the permanent placement of the support structures associated with the multi-use pathway. Direct impacts may occur as a result of the placement of permanent structures within the tidal channels, an increase in turbidity within the creek from sediment runoff, noise disturbance, and ground vibrations during construction. Indirect impacts may also occur due to the potential for an increase in human-generated trash and once installed, the multi-use pathway may increase the shading of a portion of Corte Madera Creek and a tidal channel. Refer to Table S-1 (Impacts Summary) below.

### **S.2.3 California Central Coast Coho Salmon Critical Habitat/Essential Fish Habitat**

Corte Madera Creek has been designated as critical habitat and essential fish habitat for Coho. Project activities within the critical habitat and EFH would involve construction associated with the multi-use pathway only. The construction is anticipated to result in 0.75 ac (0.30 ha) of temporary impacts to Corte Madera Creek from the potential use of a barge and 0.02 ac (0.01 ha) of permanent impacts to the tidal channels from the permanent placement of the support structures associated with the multi-use pathway. Direct impacts may occur as a result of the placement of permanent structures within the tidal channels, an increase in turbidity within the creek from sediment runoff, noise disturbance, and ground vibrations during construction. Indirect impacts may also occur due to the potential for an increase in human-generated trash and once installed, the multi-use pathway may increase the shading of a portion of Corte Madera Creek and a tidal channel. Refer to Table S-1 (Impacts Summary) below.

### **S.2.4 Trees**

The Study Area contains two native species of trees (*Quercus agrifolia*) and coast redwood (*Sequoia sempervirens*) that meet the criteria for protection under local tree ordinances, coast live oak. Additional non-native trees and shrubs are located throughout the Study Area; however, they are most abundant in the northern portion of the Study Area, north of East SFDB and east of U.S. Highway 101 (Appendix B). The construction activities associated with this project are anticipated to result in the removal of 47 trees. A total of 16 coast live oak trees would be removed as a result of this proposed project. The Study Area would be replanted as described in Tree Mitigation Measure 1 (Section S-2). Refer to Table S-1 (Impacts Summary) below. Direct impacts to trees would include removal and trimming. There are no anticipated indirect impacts.

## **S.3 Special-status Species**

### **S.3.1 Tidewater Goby, California Central Coast Steelhead and California Central Coast Coho Salmon**

Corte Madera Creek and tidal channels may provide potentially suitable habitat for TWG, CCCS and Coho. Corte Madera Creek has been designated as critical habitat and essential fish habitat for Coho. Project activities within the critical habitat and EFH would involve construction associated with the multi-use pathway only. The construction is anticipated to result in 0.75 ac (0.30 ha) of temporary impacts to Corte Madera Creek from the potential use of a barge and 0.02

ac (0.01 ha) of permanent impacts to the tidal channels from the permanent placement of the support structures associated with the multi-use pathway. Direct impacts may occur as a result of the placement of permanent structures within the tidal channels, an increase in turbidity within the creek from sediment runoff, noise disturbance, and ground vibrations during construction. Indirect impacts may also occur due to the potential for an increase in human-generated trash and once installed, the multi-use pathway may increase the shading of a portion of Corte Madera Creek and a tidal channel. Refer to Table S-1 (Impacts Summary) below.

### **S.3.2 California Clapper Rail and Black Rail**

The tidal salt marsh may provide potentially suitable dispersal habitat for CCR and CBR. A survey to determine presence or absence of this species within the study area was conducted during spring 2009 (Appendix C). No breeding pairs were identified during the surveys, however the Study Area may be used as a dispersal corridor. The geotechnical investigation and the multi-use pathway construction are anticipated to result in 0.04 ac (0.02 ha) of temporary impacts and 0.41 ac (0.17 ha) of permanent impacts to potentially suitable CCR and CBR habitat. Direct impacts to the tidal salt marsh are anticipated due to the placement of permanent structures associated with the multi-use pathway, installation of a temporary access pathway for the geotechnical investigation, installation of a temporary construction access area for the multi-use pathway, and temporary construction activities (i.e., noise disturbance, ground vibrations, and dust generated) from use of heavy equipment within the Study Area. Indirect impacts may occur due to the anticipated increase in pedestrian and bicycle traffic and the potential human-generated trash within the tidal salt marsh area. Additionally, construction of the multi-use pathway may also increase the shading, and subsequent dieback of vegetation (i.e., pickleweed) within the tidal salt marsh.

### **S.3.3 Migratory Birds**

The project is located adjacent to the San Francisco Bay, which is part of the Pacific Flyway, the bi-annual waterfowl migration route. The marshes and mudflats of the San Francisco Bay in Corte Madera Creek provide feeding and roosting habitat for migratory birds. Several special-status birds may forage and/or nest in vegetation communities within or adjacent to the Study Area. No permanent or temporary impacts are anticipated because pre-construction nest surveys would be performed as described in Migratory Bird Treaty Act (MBTA) Mitigation Measures 1 and 2 (Section S-2). Direct impacts would include tree trimming and removal and may include the noise, ground vibrations, and dust generated from use of heavy equipment within the Study Area. No indirect impacts are anticipated.

### **S.3.4 Salt Marsh Harvest Mouse**

The tidal salt marsh in the study area may provide potentially suitable habitat for SMHM. The geotechnical investigation and the multi-use pathway construction are anticipated to result in 0.04 ac (0.02 ha) of temporary impacts and 0.41 ac (0.17 ha) of permanent impacts to SMHM habitat. Direct impacts to the tidal salt marsh are anticipated due to the placement of permanent structures associated with the multi-use pathway, installation of a temporary access pathway for the geotechnical investigation, installation of a temporary construction access area for the multi-use pathway, and temporary construction activities (i.e., noise disturbance, ground vibrations, and dust generated) from use of heavy equipment within the Study Area. Indirect impacts may occur due to the anticipated increase in pedestrian and bicycle traffic and the potential human-generated trash within the tidal salt marsh area. Additionally, construction of the multi-use pathway may also increase the shading, and subsequent dieback of vegetation (i.e., pickleweed) within the tidal salt marsh

## **S.4 Proposed Project Impacts**

The proposed project would impact sensitive natural communities and special-status species. These impacts are described and summarized in Table S-1. The implementation of mitigation measures included in this report (Table S-2) would reduce the potential impacts on these resources; however, despite the implementation of these measures, direct and indirect impacts from temporary and permanent impacts are anticipated. Impacts to the tidal salt marsh would be mitigated as part of the Clean Water Act Section 404 permit and impacts to CCR, CBR, and SMHM habitat would be mitigated in accordance with the terms and conditions identified by the US Fish and Wildlife Service (USFWS) during Endangered Species Act Section 7 consultation. To offset the impacts to the tidal salt marsh, habitat would be created, restored, or set aside in perpetuity suitable in a ratio to be determined through coordination with the U.S. Army Corps of Engineers (USACE) and the USFWS. Alternately, mitigation credits may be purchased through an USFWS- approved mitigation bank, if available. If no mitigation bank is available, mitigation may be accomplished through support of existing or planned conservation projects. The proposed mitigation would offset impacts identified for CCR, CBR, and SMHM because they share similar habitats.

**S-1. Impacts Summary**

<b>Natural Resource</b>	<b>Temporary Impacts (Area/Quantity)</b>	<b>Permanent Impacts (Area/Quantity)</b>	<b>Direct Impacts Sources</b>	<b>Indirect Impacts Sources</b>
<i>Sensitive Natural Communities/Resources</i>				
Waters of the US (tidal salt marsh)	Geotechnical 0.04 ac (0.02 ha)	0.03 ac (0.01 ha) <sup>1</sup>	<ul style="list-style-type: none"> <li>• Installation of a temporary access pathway for geotechnical investigation</li> <li>• Installation of a temporary construction access area for construction of the multi-use pathway</li> <li>• Placement of permanent structures associated with the multi-use pathway</li> </ul>	<ul style="list-style-type: none"> <li>• Shading from multi-use pathway and dieback of vegetation</li> <li>• Potential increase in human-generated trash</li> </ul>
	Multi-use Pathway 0.38 ac (0.15 ha)			
Waters of the US (“other” waters)	Geotechnical N/A	0.01 ac (<0.01 ha) <sup>1</sup>	<ul style="list-style-type: none"> <li>• Potential temporary use of a barge within Corte Madera Creek for construction</li> <li>• Installation of a temporary construction access area for construction of the multi-use pathway</li> <li>• Temporary construction activities (i.e., turbidity)</li> <li>• Placement of permanent structures associated with the multi-use pathway</li> </ul>	<ul style="list-style-type: none"> <li>• Potential increase in human-generated trash</li> </ul>
	Multi-use Pathway 0.75 ac (0.30 ha)			
California Central Coast steelhead critical habitat	0.75 ac (0.30 ha)	0.02 ac (0.01 ha)	<ul style="list-style-type: none"> <li>• Potential temporary use of a barge within Corte Madera Creek for construction</li> <li>• Installation of a temporary construction access area for construction of the multi-use pathway</li> <li>• Temporary construction activities (i.e., turbidity, noise disturbance, ground vibrations)</li> </ul>	<ul style="list-style-type: none"> <li>• Shading from multi-use pathway</li> <li>• Potential increase in human-generated trash</li> </ul>
California Central Coast Coho salmon essential fish habitat				
Trees	Trimming	Removal of up to 47 Trees	<ul style="list-style-type: none"> <li>• Trimming and removal</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<i>Special-status Species</i>				
Tidewater Goby	0.75 ac (0.30 ha)	0.02 ac (0.01 ha)	<ul style="list-style-type: none"> <li>• Potential temporary use of a barge within Corte Madera Creek for construction</li> <li>• Installation of a temporary construction access area for construction of the multi-use pathway</li> <li>• Temporary construction activities (i.e., turbidity, noise disturbance, ground vibrations)</li> </ul>	<ul style="list-style-type: none"> <li>• Shading from multi-use pathway</li> <li>• Potential increase in human-generated trash</li> </ul>
California Central Coast steelhead				
California Central Coast Coho salmon				

Natural Resource	Temporary Impacts (Area/Quantity)	Permanent Impacts (Area/Quantity)	Direct Impacts Sources	Indirect Impacts Sources
California clapper rail	0.04 ac (0.02 ha) <sup>2</sup>	0.41 ac (0.17 ha) <sup>3</sup>	<ul style="list-style-type: none"> <li>• Installation of a temporary access pathway within the tidal salt marsh for geotechnical investigation</li> <li>• Installation of a temporary construction access area within the tidal salt marsh for the multi-use pathway</li> <li>• Temporary construction activities (i.e., noise, disturbance, ground vibrations, dust)</li> <li>• Placement of permanent structures within the tidal salt marsh associated with the multi-use pathway</li> </ul>	<ul style="list-style-type: none"> <li>• Shading from multi-use pathway and dieback of vegetation</li> <li>• Increase in pedestrian and bicycle traffic</li> <li>• Potential increase in human-generated trash</li> </ul>
California black rail				
Migratory birds	None	None	<ul style="list-style-type: none"> <li>• Tree trimming and removal</li> <li>• Temporary construction activities (i.e., noise, disturbance, ground vibrations, dust)</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>
Salt marsh harvest mouse	0.04 ac (0.02 ha) <sup>2</sup>	0.41 ac (0.17 ha) <sup>3</sup>	<ul style="list-style-type: none"> <li>• Installation of a temporary access pathway within the tidal salt marsh for geotechnical investigation</li> <li>• Installation of a temporary construction access area within the tidal salt marsh for the multi-use pathway</li> <li>• Temporary construction activities (i.e., noise, disturbance, ground vibrations, dust)</li> <li>• Placement of permanent structures within the tidal salt marsh associated with the multi-use pathway</li> </ul>	<ul style="list-style-type: none"> <li>• Shading from multi-use pathway and dieback of vegetation</li> <li>• Increase in pedestrian and bicycle traffic</li> <li>• Potential increase in human-generated trash</li> </ul>

<sup>1</sup> Permanent impacts are associated only with construction of the multi-use pathway.

<sup>2</sup> Temporary impacts to these species are associated with the geotechnical investigation only.

<sup>3</sup> No temporary impacts to these species associated with the construction of the multi-use pathway are anticipated because the construction activities and restoration of the tidal salt marsh habitat would not be completed within one year.

**S-2 Mitigation Measures**

Mitigation Measure		Description	Schedule	Responsible Party
General Mitigation Measure – 1	Establish Boundary for Work Area within Sensitive Habitats	Barrier fencing will be established within the salt marsh habitat to delineate the boundary between where construction activities are allowed and prohibited. The fencing will prevent encroachment by construction equipment and personnel into the surrounding prohibited areas of the salt marsh and creek habitats. The construction specifications shall contain clear language that restricts construction-related activities, prohibits vehicle operation, material and equipment storage, and other surface-disturbing activities within the prohibited areas. In addition, hydrologic features (i.e., topographic depressions, roadside ditches, culverts, etc.) outside the Study Area will not be manipulated (i.e., re-routed, dredged, filled, graded, etc.). This will reduce potential effects to wetlands outside of the Study Area that may be hydrologically connected to wetlands within the Study Area.	Prior to initiating and maintain throughout construction	Contractor
General Mitigation Measure – 2	Implement Erosion Control Measures and Storm Water Pollution Prevention Plans	<p>A Stormwater Pollution Prevention Plan (SWPPP) and erosion control best management practices (BMPs) will be developed to minimize wind or water-related erosion. A SWPPP will be developed for the project, as is required by the Regional Water Quality Control Board (RWQCB) for all projects that have at least one acre of soil disturbance. The following protective measures would be included in the SWPPP:</p> <ul style="list-style-type: none"> <li>• No discharge of pollutants from vehicle and equipment cleaning will be allowed into the storm drain or water courses.</li> <li>• Vehicle and equipment fueling and maintenance operations must be at least 100 feet from water courses, unless separated by a topographic or drainage barrier.</li> <li>• Concrete waste will not be allowed into water courses and will be collected in washouts. Water from curing operations will be properly disposed offsite.</li> <li>• Dust control measures will be implemented, including the use of water trucks and the application of tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when required.</li> <li>• Coir rolls will be installed along or at the base of slopes during construction to capture sediment.</li> <li>• Protection of graded areas from erosion will occur using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas.</li> <li>• Use of bio-filtration strips and swales to receive stormwater discharges from the adjacent roadway, or other impervious surfaces will be incorporated.</li> </ul>	Complete SWPPP prior to construction and implement throughout construction	Contractor

Mitigation Measure		Description	Schedule	Responsible Party
General Mitigation Measure – 3	Replant/Re-Seed to Stabilize Disturbed Area	The applicant will immediately plant or re-seed all slopes affected by the proposed project with native grasses and shrubs to stabilize the slopes against erosion. Following construction, the applicant will install native plant species appropriate for the location of the disturbed area. Furthermore, the applicant shall comply with all applicable local tree ordinances.	After construction activities are completed	Contractor
General Mitigation Measure – 4	Replant/Re-Seed Salt Marsh Habitat	The applicant will immediately plant or re-seed the salt marsh habitat along the north bank of Corte Madera Creek affected by the proposed project to revegetate the disturbed habitat. Following construction, the applicant will install native salt marsh plant species appropriate for the location of the disturbed area per an agency-approved Mitigation and Monitoring Plan.	After construction activities are completed	Contractor
General Mitigation Measure – 5	Provide Environmental Awareness Training	<p>Before the onset of construction activities, a qualified biologist will conduct an education program for all construction personnel. At a minimum the training will include:</p> <ul style="list-style-type: none"> <li>• A description of California clapper rail (CCR), California black rail (CBR), salt marsh harvest mouse (SMHM), tidewater goby (TWG), California central coast steelhead (CCCS), and Coho and their habitats,</li> <li>• The occurrence of these species within the Study Area, an explanation of the status of these species and protection under the Federal Endangered Species Act (FESA) and California Endangered Species Act (CESA),</li> <li>• The measures that are being implemented to conserve the species and their habitats as they relate to the work site, and the work site boundaries within which construction may occur.</li> <li>• A fact sheet conveying this information will be prepared for distribution to the construction personnel and other project personnel who may enter the site.</li> <li>• Upon completion of the program, personnel will sign a form stating that they attended the program and understand all the Mitigation measures and implications of the FESA and CESA.</li> </ul>	Prior to commencement of construction activities	Project Proponent
General Mitigation Measure – 6	Restrictions on Construction Activities	<p>The following restrictions on construction activities shall be imposed:</p> <ul style="list-style-type: none"> <li>• A speed limit of 15 miles per hour in unpaved areas of the Study Area will be enforced to reduce dust and excessive soil disturbance.</li> <li>• Construction staging, storage, and parking areas will be located within the SMART and/or Caltrans ROW and outside of any prohibited work areas. Access routes and the number and size of staging and work areas will be limited to the minimum necessary to construct the proposed project. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.</li> <li>• All food and food-related trash items will be enclosed in sealed trash</li> </ul>	Prior to and during construction	Contractor

Mitigation Measure		Description	Schedule	Responsible Party
		<p>containers and removed completely from the site at the end of each day.</p> <ul style="list-style-type: none"> <li>• No pets from construction and project personnel will be allowed anywhere in the proposed project work area during construction.</li> <li>• No firearms will be allowed on the project site except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.</li> <li>• All equipment will be maintained in order to prevent leaks of automotive fluids such as gasoline, oils or solvents. A Spill Response Plan will be prepared. Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in designated locations at least 100 ft from wetlands and aquatic habitats.</li> <li>• Servicing of vehicles and construction equipment including fueling, cleaning, and maintenance will occur at least 100 ft from any aquatic habitat unless they are separated by a topographic or drainage barrier. Staging areas may occur closer to the project activities as required.</li> <li>• Work within an inundated drainage, channel, or wetland or in-water work, will be conducted outside the Central and Northern California rainy season of October 15 through April 15.</li> <li>• Construction in an inundated drainage will be conducted with coffer dams to isolate dewatered areas from active channel habitats.</li> <li>• Use of herbicides will be restricted in the prohibited areas.</li> <li>• To the maximum extent possible, nighttime construction will be minimized.</li> </ul>		
General Mitigation Measure – 7	USFWS-Approved Biologist	A U.S. Fish and Wildlife Service (USFWS)-approved biologist will be designated for the project and will be on-call during all construction activities that occur within the Study Area. Qualifications of the biologist(s) must be presented to the USFWS for review and written approval prior to groundbreaking at the project site. The biologist will perform pre-construction surveys. If requested, before, during, or upon completion of ground breaking and construction activities, the applicant shall allow access by USFWS personnel to the project site to inspect the project.	Prior to and during construction	Project Proponent
General Mitigation Measure – 8	Post Construction Compliance Form	A post-construction compliance report prepared by the on-call biologist will be provided to the USFWS within forty (40) working days following project completion or within sixty (60) calendar days of any break in construction activity lasting more than forty (40) working days.	After construction activities are completed and after construction breaks > 40 working days.	Project Proponent

Mitigation Measure		Description	Schedule	Responsible Party
General Mitigation Measure – 9	Wetland Mitigation	To offset the impacts to the tidal salt marsh, habitat would be created, restored, or set aside in perpetuity in a ratio to be determined through coordination with the U.S. Army Corps of Engineers (USACE) and the USFWS. Alternately, mitigation credits may be purchased through a USFWS-approved mitigation bank, if available. If no mitigation bank is available, mitigation may be accomplished through support of existing or planned conservation projects within the region.	Prior to construction	Project Proponent
Aquatic Mitigation Measure – 1	California Rainy Season Construction Avoidance Timeline	Conduct in-stream work between April 16 and October 14. Work within an inundated drainage or channel, or in-water work, will be conducted outside the Central and Northern California rainy season of October 15 through April 15.	During construction	Contractor
Aquatic Mitigation Measure – 2	Restore flows following the completion of Construction	Following completion of the project, all materials used to maintain flow and divert water from the Study Area during the construction period, including, but not limited to, cofferdams, pipes, filter fabric, fill material, and gravel should be removed. All excess soil should be disposed at an approved upland site.	After construction activities are completed	Contractor
Tree Mitigation Measure – 1	Work Shall Conform to Local Tree Ordinances	The City of Larkspur Heritage Tree Ordinance stipulates that the removal of trees with a 50 inch circumference or greater, measured at 2 feet above grade requires a permit. Replacement of removed trees would occur at a ratio to be determined through coordination with the City of Larkspur.	Coordinate prior to construction; implement after construction	Project Proponent
Noxious Weeds Mitigation Measure – 1	Minimize Dispersal of Noxious Weeds into Un-infested Areas	Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weeds. Identify areas with populations of high priority noxious weed infestations and flag areas for easy identification by construction crews. Clean construction equipment after leaving areas with high priority noxious weeds.	During construction	Contractor
Fish Mitigation Measure – 1	Work in Live Streams Shall be Minimized.	If it is necessary to conduct work in a live stream, the workspace shall be isolated to avoid construction activities in flowing water. The proposed project shall allow fish passage past the project area. Adequate water depth and channel width must be maintained at all times for fish passage. Prior to construction activities, the workspace will be isolated from flowing water to prevent sedimentation and turbidity and avoid effects to fish. The diversion shall remain in place during the project and be removed immediately after work is completed, in a manner that will allow flow to resume with the least disturbance to the substrate.	During construction	Contractor
Fish Mitigation Measure – 2	Dewatering	If dewatering any area is required, either a pump shall remove water to an upland disposal site, or a filtering system shall be used to collect the water and return clear water to the creek. The pump intake shall be fitted with a fish exclusion device that meets the National Marine Fisheries Service (NMFS) fish screening criteria.	During construction	Contractor

Mitigation Measure		Description	Schedule	Responsible Party
Fish Mitigation Measure – 3	Presence of Biologist During Dewatering	During dewatering activities a fisheries biologist shall be present to salvage individuals, should they be present. Fish will be netted, placed in a bucket of water and immediately moved to a downstream portion of the creek. Records of species, relative size, and number of individuals shall be kept. Periodic checks of the work area shall occur to ensure that fish have not re-entered the work area.	During construction	Contractor
Fish Mitigation Measure – 4	Placement of Non-toxic Structures in Streams	All materials placed in the stream, such as pilings and retaining walls, shall be non-toxic. Any combination of wood, plastic, cured concrete, steel pilings or other materials used for in-channel structures shall not contain coatings or treatments or consist of substances deleterious to aquatic organisms that may leach into the surrounding environment in amounts harmful to aquatic organisms.	During construction	Contractor
Fish Mitigation Measure – 5	Minimize Disturbance from Construction Access	Disturbance to existing grades and vegetation will be limited to the actual site of the project and necessary access routes. Placement of all roads, staging areas, and other facilities shall avoid and limit disturbance to streambank or stream channel habitat as much as possible. When possible, existing ingress or egress points shall be used and/or work performed from the top of the creek banks. Obvious barriers to fish passage should be removed to facilitate upstream movement.	During construction	Contractor
Fish Mitigation Measure – 6	Erosion Control	Erosion control and sediment detention devices (e.g., well-anchored sandbag cofferdams, straw bales, “Aqua Dam,” or silt fences) shall be incorporated into the project design and implemented at the time of construction. These devices shall be in place during construction activities, and after if necessary, for the purposes of minimizing fine sediment and sediment/water slurry input to flowing water, and of detaining sediment laden water on-site. These devices will be placed at all locations where the likelihood of sediment input exists. A supply of erosion control materials will be kept on hand to cover small sites that may become bare and to respond to sediment emergencies.	Prior to and during construction	Contractor
California Clapper Rail Mitigation Measure – 1	Construction Avoidance Timeline	To the extent feasible, construction activities within permitted work areas shall occur between September 1 and February 28 to reduce potential impacts to CCR breeding/nesting season. If construction must occur during the period from March 1 to August 31, a qualified wildlife biologist shall conduct pre-construction surveys for nesting birds. If an active nest is found, the bird shall be identified to species and the approximate distance from the closest work site to the nest estimated. No additional measures need be implemented if active nests are more than 300 ft from the nearest work site. If active nests are closer than 300 ft to the nearest work site and there is the potential for destruction of a nest or substantial disturbance to nesting birds due to construction activities, a plan to monitor nesting birds during construction shall be prepared and submitted to the USFWS and California Department of Fish and Game (CDFG) for review and approval. Disturbance of active nests shall be avoided to the extent possible until it is determined that nesting is complete and the young have	During construction	Contractor

Mitigation Measure		Description	Schedule	Responsible Party
		fledged.		
California Clapper Rail Mitigation Measure – 2	Halt Work if CCR is Observed in Work Area	The resident engineer will halt work and immediately contact the approved on-call biologist and the USFWS in the event that a CCR enters the construction zone. The resident engineer will suspend all construction activities in the immediate construction zone until the animal leaves the site voluntarily, or is removed by the biologist to a release site using USFWS-approved transportation techniques.	During construction	Contractor
California Clapper Rail Mitigation Measure – 3	Care for Injured CCR	Injured CCR will be cared for by a licensed veterinarian or other qualified person such as the on-site biologist. Dead individuals will be preserved according to standard museum techniques and held in a secure location. The USFWS and the CDFG will be notified within one working day of the discovery of death or injury to CCR.	During construction	Contractor
California Black Rail Mitigation Measure – 1	Construction Avoidance Timeline	To the extent feasible, construction activities within permitted work areas shall occur between July 1 and January 31 to reduce potential impacts to CBR breeding/nesting season. If construction must occur during the period from February 1 to June 30, a qualified wildlife biologist shall conduct pre-construction surveys for nesting birds. If an active nest is found, the bird shall be identified to species and the approximate distance from the closest work site to the nest estimated. No additional measures need be implemented if active nests are more than the 300 ft from the nearest work site. If active nests are closer than 300 ft to the nearest work site and there is the potential for destruction of a nest or substantial disturbance to nesting birds due to construction activities, a plan to monitor nesting birds during construction shall be prepared and submitted to the USFWS and CDFG for review and approval. Disturbance of active nests shall be avoided to the extent possible until it is determined that nesting is complete and the young have fledged.	During construction	Contractor
California Black Rail Mitigation Measure – 2	Halt Work if CBR is Observed in Work Area	The resident engineer will halt work and immediately contact the approved on-call biologist and the USFWS in the event that a CBR enters the construction zone. The resident engineer will suspend all construction activities in the immediate construction zone until the animal leaves the site voluntarily, or is removed by the biologist to a release site using USFWS-approved transportation techniques.	During construction	Contractor
California Black Rail Mitigation Measure – 3	Care for Injured CBR	Injured CBR will be cared for by a licensed veterinarian or other qualified person such as the on-site biologist. Dead individuals will be preserved according to standard museum techniques and held in a secure location. The USFWS and the CDFG will be notified within one working day of the discovery of death or injury to CBR.	During construction	Contractor
Migratory Bird Treaty Act (MBTA) Mitigation Measure – 1	Construction Activities Conducted Outside of Nesting Season	To the extent practicable, shrub and tree trimming and/or removal activities associated with the proposed project will be conducted outside the nesting season (generally between February 1 and August 31).	During construction	Contractor

Mitigation Measure		Description	Schedule	Responsible Party
MBTA Mitigation Measure – 2	Conduct Pre-construction Surveys for Nesting Birds	If shrub and tree removal is scheduled to occur during the nesting season, a qualified wildlife biologist, familiar with the species and habitats in the Study Area, will conduct preconstruction surveys for nesting birds with suitable nesting habitat in the Study Area. The nesting bird surveys should be conducted within one week before initiation of construction activities within those habitats. If no active nests are detected during surveys, construction may proceed. If active nests are detected then MBTA Mitigation Measure – 3 will be implemented.	Prior to construction	Contractor
MBTA Mitigation Measure – 3	Install Exclusion Fencing	A no-disturbance buffer will be established around nests identified during preconstruction surveys. The extent of the no-disturbance buffers will be determined by a wildlife biologist in consultation with CDFG and will depend on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographic or artificial barriers. The purpose of the buffer is to avoid disturbance or destruction of the nest until after the breeding season, or until a wildlife biologist determines that the young have fledged (usually late-June to mid-July). Within this buffer, all non-essential construction activities (e.g., equipment storage, meetings) should be avoided. However, construction activities can proceed if the biological monitor determines that the individual is not likely to abandon the nest during construction.	Prior to and during construction	Contractor
Salt Marsh Harvest Mouse Mitigation Measure – 1	SMHM Construction Avoidance Timeline	To the extent feasible, construction activities within permitted work areas shall occur between December 1 and February 28 to reduce potential impacts to SMHM breeding/nesting season. If construction must occur during the period from March 1 to November 30, a qualified wildlife biologist shall conduct pre-construction surveys for SMHM.	Prior to construction	Contractor
Salt Marsh Harvest Mouse Mitigation Measure – 2	Halt Work if SMHM is observed in Work Area	The resident engineer will halt work and immediately contact the approved on-call biologist and the USFWS in the event that a SMHM enters the construction zone. The resident engineer will suspend all construction activities in the immediate construction zone until the animal leaves the site voluntarily, or is removed by the biologist to a release site using USFWS-approved transportation techniques.	During construction	Contractor
Salt Marsh Harvest Mouse Mitigation Measure – 3	Care for Injured SMHM	Injured SMHM will be cared for by a licensed veterinarian or other qualified person such as the on-site biologist. Dead individuals will be preserved according to standard museum techniques and held in a secure location. The USFWS and the CDFG will be notified within one working day of the discovery of death or injury to SMHM.	During construction	Contractor
Salt Marsh Harvest Mouse Mitigation Measure – 4	Install an Exclusion Fence	A temporary exclusionary fence will be installed to prevent SMHM from entering the permitted work area within the salt marsh. The fence will be maintained and kept in proper working condition for the duration of the construction activities that occur within the salt marsh.	Prior to and during construction	Contractor

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## **List of Abbreviated Terms**

ac	acre
asml	above mean sea level
BCDC	San Francisco Bay Conservation and Development Commission
BMP	best management practice
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CBR	California black rail
CCR	California clapper rail
CCCS	Central California Coast Steelhead
CDFA	California Department of Food and Agriculture
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Coho	Central California Coast Coho Salmon
CWA	Clean Water Act
dbh	diameter at breast height
EFH	Essential Fish Habitat
FCMC	Friends of Corte Madera Creek
FE	Federally Endangered
FESA	Federal Endangered Species Act
FT	Federally Threatened
ft	foot/feet
In	inch/inches
MBTA	Migratory Bird Treaty Act

MMP	Mitigation and Monitoring Plan
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPPA	Native Plant Protection Act
NRM	Natural Resources Management
NRS	Natural Resource Study
PM	post mile
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SE	State Endangered
SFDB	Sir Francis Drake Boulevard
SMART	Sonoma Marin Area Rail Transit
SMHM	salt marsh harvest mouse
ST	State Threatened
SWPPP	storm water pollution prevention plan
TAM	Transportation Authority of Marin
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USEPA	United States Environmental Protection Agency
WUS	Waters of the U.S.

# Chapter 1. Introduction

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The purpose of this Natural Resource Study (NRS) report is to provide technical information and to review the proposed project in sufficient detail to determine to what extent it may affect sensitive natural resources, which include natural communities of special concern and special-status species. The document presents technical information upon which later decisions regarding project impacts are developed.

The Transportation Authority of Marin (TAM) is proposing to construct a new multi-use pathway intended to further promote non-motorized commute alternatives and enhance recreational travel within the City of Larkspur in Marin County, California (Figure 1-1). TAM plans to construct the project in two phases. Phase I of the Central Marin Ferry Connection (CMFC) Project, and the scope of this proposed project, would construct a multi-use pathway adjacent to the east side of U.S. Highway 101 from PM 14.7 to PM 15.3 that would include an overcrossing above East Sir Francis Drake Boulevard (SFDB) and connect to the existing multi-use pathway located south of East SFDB (Figure 1-2). Phase I would connect to the southern limit of the Cal Park Hill Tunnel Pathway to the north, which is currently under construction. Phase II of the proposed project would extend the Phase I multi-use pathway to the south along the east side of U.S. Highway 101 to Wornum Drive and include an overcrossing above Corte Madera Creek and provide access to the Greenbrae Boardwalk. Once completed, the entire CMFC project (i.e., Phases I and II) would provide a continuous multi-use pathway from the Cal Park Hill Tunnel and the future Sonoma Marin Area Rail Transit (SMART) Larkspur Station in the north to Wornum Drive in the south.

Phases I and II of the proposed project have independent utility with respect to each other because each would serve their own purpose and would occur regardless of whether the other phase was to occur. The independent utility analysis does not include the Cal Park Hill Tunnel Rehabilitation and Path Project because it is under construction and constitutes an existing condition.

## 1.1. Project History

The County of Marin identified the need to improve the U.S. Highway 101 corridor from the Tamalpais Drive interchange in the Town of Corte Madera to the East SFDB interchange in the City of Larkspur (i.e., Greenbrae Corridor) as early as 1999. The need for improving the corridor was recognized as a high priority at the regional planning level and in 2004, Regional Measure 2 was approved, which provided funds to further develop the improvements.

Figure 1-1. Vicinity Map

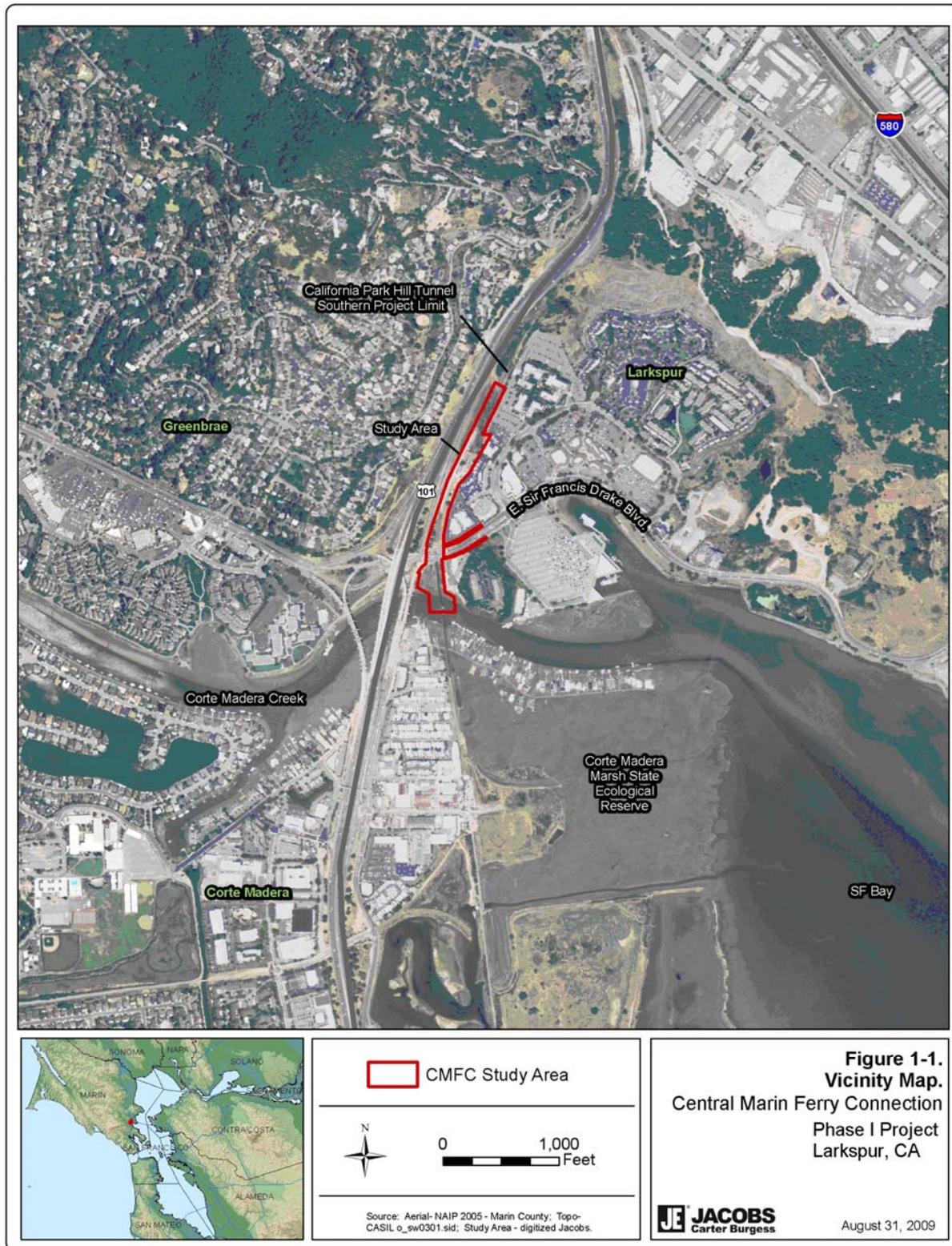
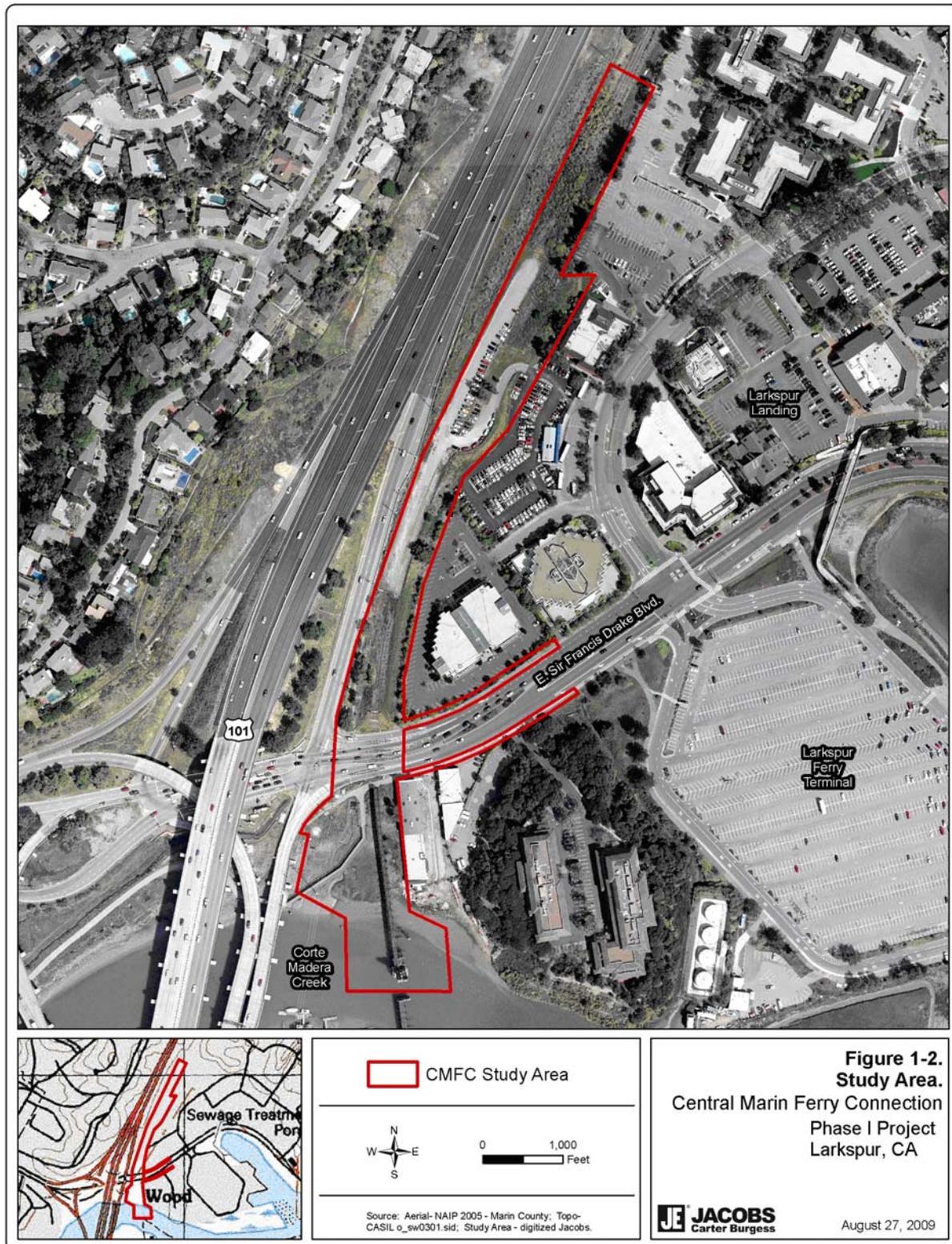


Figure 1-2. Study Area



In coordination with the California Department of Transportation (Caltrans), TAM engaged the public in a series of public workshops to identify public concerns and develop several alternatives using context sensitive design principles to integrate stakeholder input into the project development process. This included considering the physical setting, as well as addressing community values as part of the public outreach process. In addition to identifying motorized transportation alternatives throughout the corridor, non-motorized commute alternatives for the U.S. Highway 101/East SFDB interchange were developed, which included the improvements described in this proposed CMFC Phase I Project. The U.S. Highway 101/East SFDB interchange serves a critical role in the Marin County multimodal transportation network because it serves freeway, regional and local traffic, access to cities east and west of U.S. Highway 101, the Larkspur Ferry Terminal, the Marin Airpporter, Larkspur Landing, and business and commercial developments along Corte Madera Creek.

## **1.2. Project Need**

Currently, north/south non-motorized travel is difficult at the U.S. Highway 101/East SFDB interchange because East SFDB serves as a physical barrier between the Cal Park Hill Tunnel Pathway, located north of East SFDB, and the multi-use pathway, located south of East SFDB. Access to the multi-use pathway from the north side of East SFDB requires travelers to cross the roadway at Larkspur Landing Circle, which is located approximately 800 feet to the east. Also, Corte Madera Creek and the adjacent salt marsh provide a unique habitat viewing area opportunity; however, access to points from which to view the creek and salt marsh are limited.

## **1.3. Project Purpose**

The purpose of this proposed project would be to improve public access and connectivity for non-motorized access by constructing a new East SFDB overcrossing east of the U.S. Highway 101/East SFDB interchange. This proposed project would also improve the opportunities to observe the Corte Madera Creek salt marsh area, by constructing an elevated path along the north bank of Corte Madera Creek. This proposed project is of importance to central Marin County because it would provide safe, and convenient non-motorized access between local transit facilities (i.e., future SMART station) and the existing Larkspur Ferry Terminal, as well as access to schools, business centers, and residential communities.

## **1.4. Phase I Project Description**

The proposed project would include the following construction activities for Phase I:

- Conduct a geotechnical survey;

- Construct a new multi-use pathway that extends from the existing Cal Park Hill Tunnel Pathway to East SFDB;
- Construct a new multi-use pathway overcrossing structure and approach ramps at East SFDB;
- Construct a new access ramp from the sidewalk on the north side of East SFDB to the new overcrossing;
- Construct an approach ramp for the multi-use path south of East SFDB with viewing areas above the salt marsh area and Corte Madera Creek;
- Construct a new access ramp that conforms to the existing multi-use paths and repave the existing multi-use pathway south of East SFDB from the Highway 101 northbound off ramp structure to the Larkspur Ferry Terminal entrance;
- Construct retaining walls at various locations along the multi-use path;
- Construct new sidewalks, curbs, and gutters along East SFDB;
- Install signage, striping, lighting, screening, handrails, fencing, landscaping, truncated domes and/or bollards;
- Construct stormwater swales and detention basins;
- Remove or retrofit all or a portion of the existing railroad trestle;
- Relocate and protect existing utilities; and
- Construct access areas within the salt marsh and Corte Madera Creek.

The southern portion of the Study Area contains the most sensitive natural resource areas (i.e., tidal salt marsh and Corte Madera Creek) and is the focus of this report. However, construction activities that occur outside of these areas are also included in the impacts analysis because of the potential for disturbance from the presence of construction crews and the use of heavy machinery.

The geotechnical investigation work would require obtaining subsurface data from locations within the tidal salt marsh and Corte Madera Creek. Although the methods to access the boring locations have not yet been determined, accessing locations in the salt marsh may include the use of removable pads on which equipment would drive and/or the use of a barge for locations within the channel.

Construction of the multi-use pathway would require the installation of support structures associated with the multi-use pathway (i.e., piles, footings, and piers) within the tidal salt marsh, tidal channel, and Corte Madera Creek. The installation of these structures would likely involve dewatering (i.e., the use of coffer dams, etc.). The area surrounding the multi-

use pathway would be used for construction access and is included in the impacts analysis. The construction access area would involve the deposition of fill material within the tidal salt marsh. The fill material may consist of layers of a synthetic geo-grid material and gravel that would be used to construct an earthen platform, or the use of a temporary trestle. These options would enable construction vehicles to access the tidal salt marsh area and construct the multi-use pathway. The portion of the pathway within the open waters of Corte Madera Creek may include the use of a temporary trestle, or the use of a barge or other vessels.

## 1.5. Summary of Consultation to Date

The proposed project was discussed with federal, state and local regulatory agencies. A summary of the agencies consulted with regards to the CMFC Phase I Project is provided below in Table 1-1.

**Table 1-1 Summary of Consultation**

Agency Name	Agency Contact	Date	Comments
U.S. Army Corps of Engineers	David Wikins	January 12, 2009 and March 5, 2009	Telephone conversation to solicit guidance regarding CWA Sections 404 and 401 permits.
San Francisco Bay Regional Water Quality Control Board	Marla Lafer	January 20, 2009	
National Oceanic and Atmospheric Administration	Korie Shaeffer and Gary Stern	February 10, 17, 23 2009	Solicited guidance on potential impacts to designated critical habitat for Central California Coastal Steelhead and Essential Fish Habitat for Coho as well as consultation process.
San Francisco Bay Conservation Development Commission	Karen Wolowicz	March 12, 2009	Requirements for obtaining an administrative permit.
U.S. Fish and Wildlife Service	Melisa Helton	June 10, 2009	Informal consultation initiated

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## Chapter 2. Study Methods

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This section presents the survey methods used to evaluate the sensitive natural resources relevant to the proposed project pursuant to California Environmental Quality Act (CEQA). This document has been prepared based on the findings of several biological survey efforts. A complete list of the specific studies conducted for the proposed project is provided in Section 2.2 below, which includes a wetland delineation, tree survey, two botanical surveys, and California Clapper Rail (CCR) surveys.

### 2.1. Regulatory Requirements

Pursuant to CEQA, the following regulatory requirements would be met:

- Section 7 incidental take permit from the United States Fish and Wildlife Service (USFWS),
- Clean Water Act (CWA) 404 Permit and Section 10 Permit from the United States Army Corps of Engineers (USACE),
- CWA 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB),
- Coastal development permit from San Francisco Bay Area Conservation and Development Commission (BCDC),
- Section 1602 Lake and Streambed Alteration Agreement from the California Department of Food and Agriculture (CDFG),
- Section 2081 incidental take permit from CDFG
- Heritage tree ordinance permit

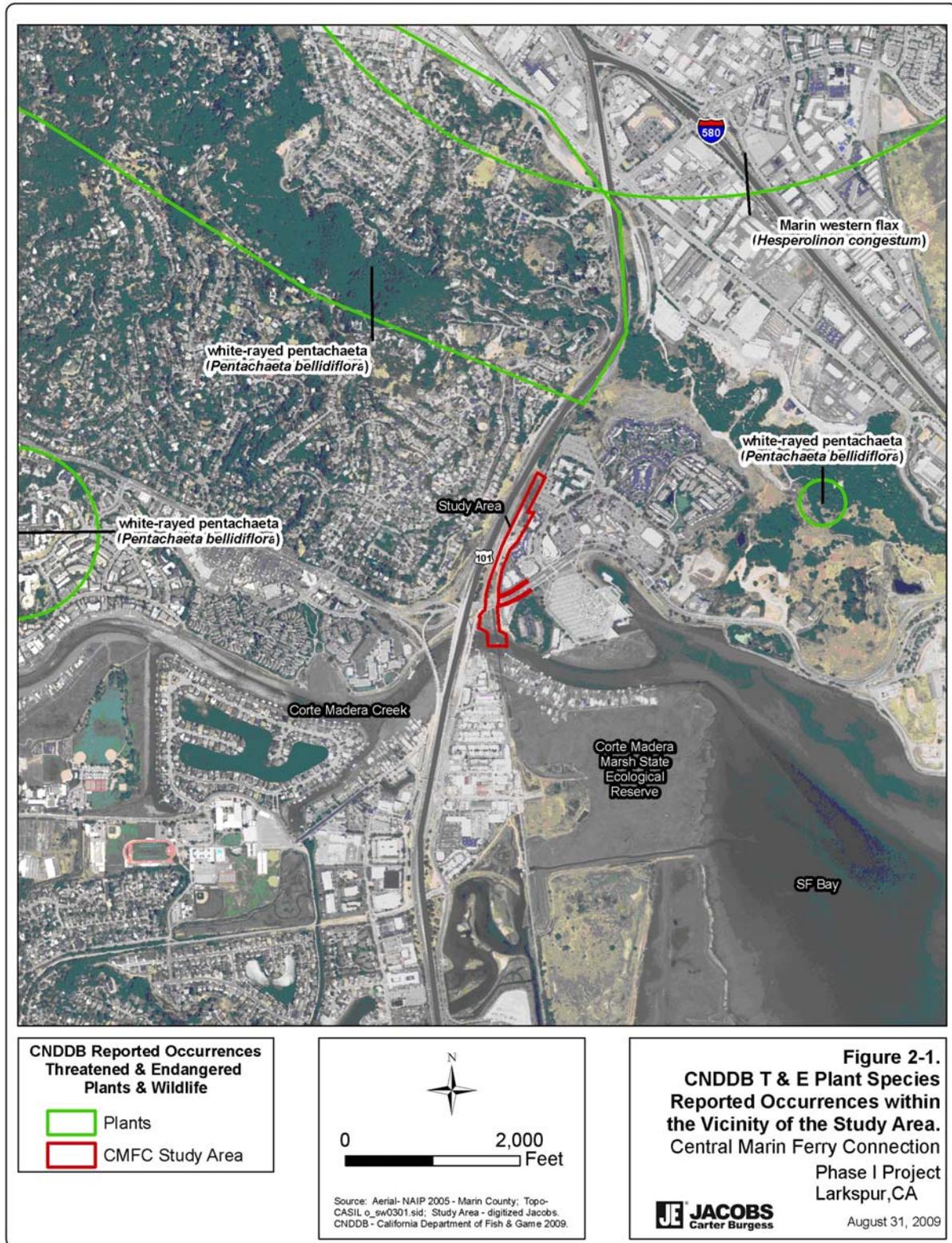
### 2.2. Studies Performed

The Study Area was surveyed and evaluated for the presence of sensitive natural communities and the potential to support special-status species. Data from USFWS, California Natural Diversity Database (CNDDB), California Native Plant Society (CNPS), and California Invasive Plant Council (Cal-IPC) were reviewed to identify special-status species that occur or have the potential to occur in the project vicinity. These data sources include:

- USFWS species list dated February 4, 2010 from the San Rafael, San Quentin, San Francisco North, Point Bonita, Bolinas, San Geronimo, Novato, and Petaluma Point U.S. Geological Survey (USGS) 7.5 minute quadrangles;
- CNDDDB occurrence records from the San Rafael, San Quentin, San Francisco North, Point Bonita, Bolinas, San Geronimo, Novato, and Petaluma Point USGS 7.5 minute quadrangles (CDFG 2010); and
- CNPS on-line database records from San Rafael, San Quentin, San Francisco North, Point Bonita, Bolinas, San Geronimo, Novato, and Petaluma Point USGS 7.5 minute quadrangles (CNPS 2010)

Special-status species occurrences documented within the region are shown on Figures 2-1 and 2-2. Potential special-status species habitats within the Study Area are shown on Figure 2-3. The southern portion of the study area is the only portion that contains potential habitat for special-status species; thus, only the southern portion is included in Figure 2-3.

**Figure 2-1. CNDDDB Threatened and Endangered Plant Species Reported Occurrences in the Vicinity of the Study Area**



**Figure 2-2. CNDDB Threatened and Endangered Wildlife Species Reported Occurrences in the Vicinity of the Study Area**

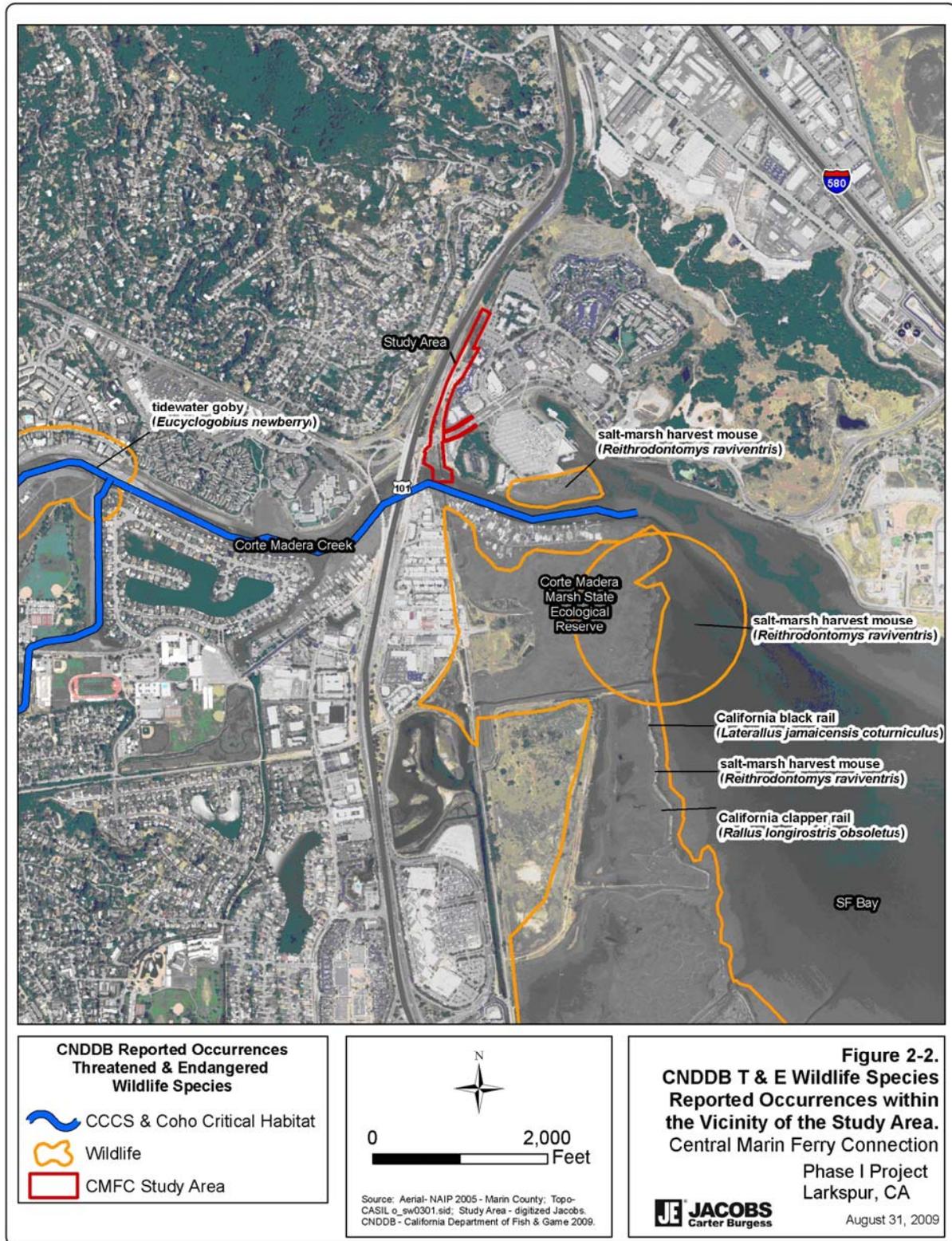
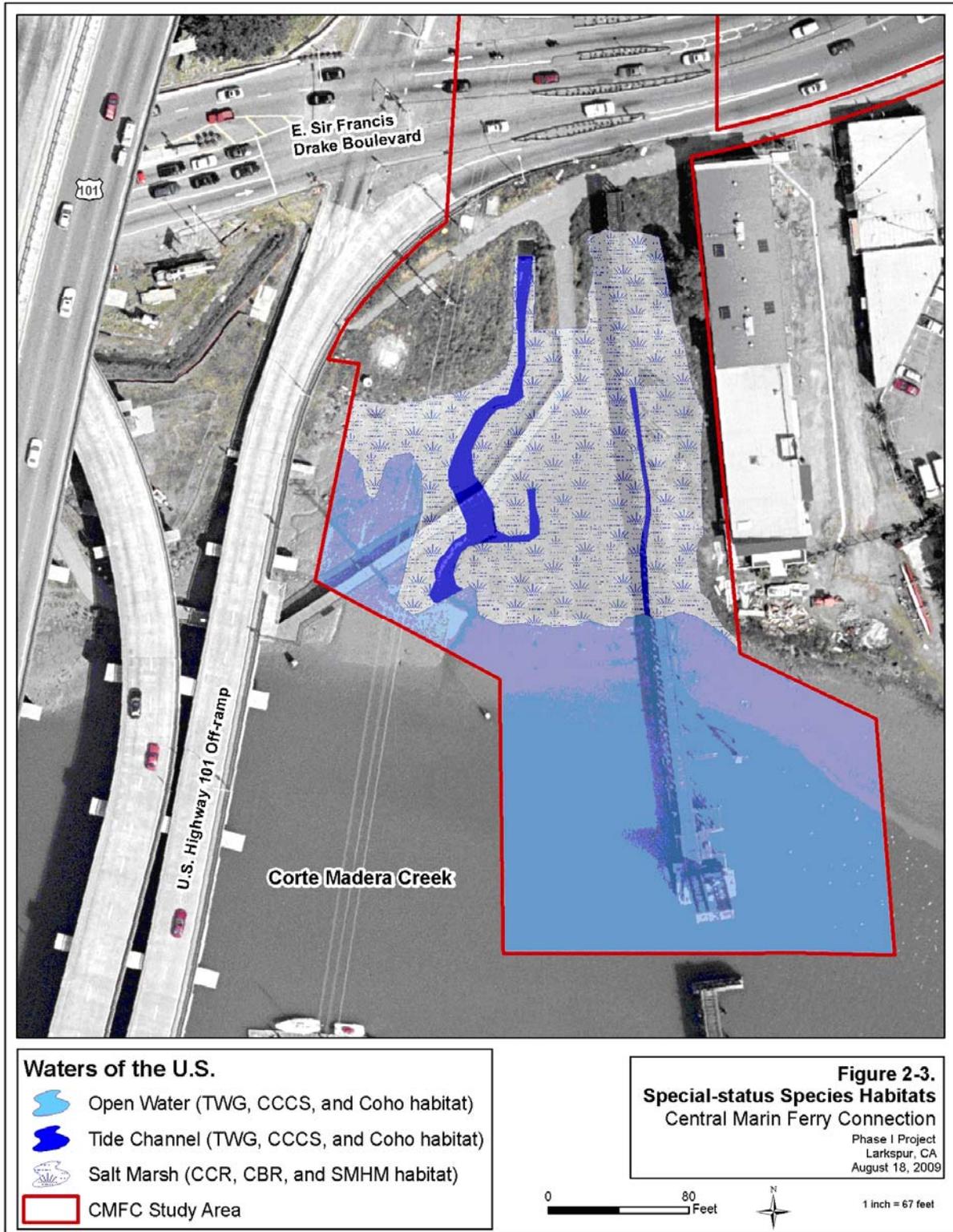


Figure 2-3. Special-status Species Habitats



### **2.2.1. Waters of the U.S. Assessment**

For the purposes of this document, the Waters of the U.S. (WUS) is an encompassing term used by the USACE for areas that would qualify for federal regulation under CWA Section 404. WUS are categorized as “wetlands” or other “waters”. A delineation of WUS within the Study Area was conducted on April 17 and 24, and July 2, 2008 by NRM. The wetland delineation report was submitted to the San Francisco District of the USACE for verification on February 13, 2009. A site visit was conducted with the representative USACE project manager on April 7, 2009 and the revised report was submitted on May 4, 2009 for final approval. The final delineation maps and verification from USACE were received July 1, 2009. Following approval of the delineation, the project area was expanded to include additional 0.68 ac (0.28 ha) within Corte Madera Creek (total=1.03 ac [0.42 ha]). A copy of the revised study area map, final report, and USACE approval letter are included in Appendix A.

### **2.2.2. Tree Survey**

For the purposes of this report, the Study Area was surveyed for the presence of trees on February 4, 2009 by Jacobs. The species, location, number, and size (diameter at breast height [dbh]) were recorded and are included in Appendix B.

### **2.2.3. Botanical Surveys**

Botanical surveys were conducted by NRM biologists on April 18 and July 2, 2008 to capture all special-status plant species with the likelihood to occur in the Study Area in a blooming form for identification. Plant communities were mapped in the field and on aerial photographs and then digitized using Geographic Information System (GIS) to determine their extent within the project limits.

### **2.2.4. California Clapper Rail Surveys**

Surveys were conducted during spring 2009 because of the presence of tidal salt marsh habitat within the Study Area and the close proximity of extant occurrences of the species in the Corte Madera Preserve located south of Corte Madera Creek. Three passive surveys were conducted within the Study Area on February 19, March 5, and March 19, 2009 and a fourth active survey using recorded bird calls was conducted on March 23, 2009. No CCR (or California Black Rail [CBR]) were detected during any of the surveys. A copy of the CCR survey report is included in Appendix C.

### 2.3. Personnel and Survey Dates

Specific survey dates and personnel are listed below in Table 2-1.

**Table 2-1. Personnel and Survey Dates**

Survey Personnel (Personnel Name, Agency/ Company)	Survey Type	Date	Notes
Mary Anne Flett	California clapper rail	February – March 2009	Spring
Misha Seguin, Shannon Fiala, NRM	Botanical and wildlife	April 18, 2008	Spring
Misha Seguin, Shannon Fiala, NRM	Wetland delineation	April 24 and July 2, 2008	Spring
Misha Seguin, NRM	Botanical	July 2, 2008	Summer
Phill Peters, Lauren Abom, Jacobs	Tree	February 4, 2009	Winter

### 2.4. Limitations That May Influence Results

Certain plant species, especially annuals, may not be present in all years due to annual variations in temperature and rainfall, which influence plant phenology. Colonization of new populations within an area may also occur from year to year. Although vegetation community descriptions are based on data samples from a single season, the dominance of annual plant species may change between sample seasons. As a result vegetation communities are subject to change when data are collected over multiple seasons.

### 2.5. Listed and Proposed Species Potentially in the Study Area

The potential for each species to occur within the Study Area was evaluated by a qualified biologist and was based on the presence or absence of habitat, known occurrences, reconnaissance surveys, review of literature and existing documentation and coordination with local experts. A table of special-status species that were determined to have the potential to occur in the region is included in Appendix D. The table includes a compilation of those species obtained from CNDDDB, CNPS, and USFWS and includes information pertaining to each species' habitat requirements and the likelihood that those habitats are present within the region.

### 2.5.1. Special-status Species

For the purposes of this report, special-status species refers to species that meet one or more of the following criteria:

- Species that are listed or proposed for listing as threatened or endangered under the FESA (50 Code of Federal Regulations [CFR] 17.12 for listed plants, 50 CFR 17.11 for listed animals, and various notices in the Federal Register for proposed species);
- Species that are candidates for possible future listing as threatened or endangered under FESA (64 FR 57534, October 25, 1999);
- Species that are listed or proposed for listing by the State of California as threatened or endangered under CESA (14 California Code Regulations 670.5);
- Plants listed as rare under the California Native Plant Protection Act of 1977 (California Fish and Game Code, Section 1900 et seq.);
- Plants considered by the CNPS to be “rare, threatened, or endangered in California”;
- Species that meet the definitions of rare or endangered under CEQA (Section 15380);
- Animals fully protected in California (California Fish and Game Code, Section 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]); and
- Nesting raptors protected in California (California Fish and Game Code, Section 3503.5).

### 2.5.2. Natural Communities of Special Concern

For the purpose of this report, natural communities of special concern are defined as:

- Sensitive vegetation communities with restricted distribution and/or threats within CDFG’s Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986), the CNDDDB (CDFG 2009), and a Manual of California Vegetation (Sawyer and Keeler-Wolf 1995);
- Riparian communities;
- Critical habitat and EFH, either designated or proposed; and
- WUS.

## Chapter 3. Environmental Setting

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This section includes a description of the overall biological context of the region. The proposed project would occur within the San Francisco Bay region, specifically on the Marin Peninsula of the North Bay and would be limited to the Study Area, as identified in Chapter 1. It would be located within an urbanized area that contains two prominent roadways: U.S. Highway 101, which runs north and south, and East SFDB, which runs east and west. U.S. Highway 101 is located adjacent to the west side of the Study Area and East SFDB generally divides the proposed project into two areas: 1) the upland area north of East SFDB, and 2) the tidal salt marsh/Corte Madera Creek area south of East SFDB.

### 3.1. Existing Biological and Physical Conditions

#### 3.1.1. Study Area

Historically, the Study Area was dominated by tidal salt marshes and upland habitats. Currently, the Study Area is located within an urbanized area with natural areas surrounded by transportation infrastructure as well as commercial and residential development. The natural areas consist of generally disturbed terrestrial and aquatic areas. A portion of Corte Madera Creek located upstream of the Study Area has been channelized along one mile of its length to facilitate conveyance of storm water runoff from the adjacent urban landscape. Despite alterations to the creek, it continues to provide habitat for wildlife and plants, which includes breeding and dispersal habitats as well as migratory pathways for many species in the region. Ground photographs of the Study Area are included in Appendix F.

#### 3.1.2. Physical Conditions

The proposed project limits can be divided into two sections (i.e., north and south) that are separated by East SFDB. The southern section is bound by Corte Madera Creek to the south, U.S. Highway 101 to the west, privately-owned land to the east, and East SFDB to the north. The northern section is bound by East SFDB to the south, U.S. Highway 101 to the west, privately-owned land to the east, and the Cal Park Hill Tunnel Pathway to the north. There is adjacent landscaping along both sides of East SFDB from the U.S. Highway 101 on- and off-ramps to the intersection with Larkspur Landing Circle. The proposed project area ranges in elevation from 0–20 feet above mean sea level. The total area included in the Study Area is 6.89 ac (2.79 ha). Approximately 2.54 ac (1.03 ha) of the Study Area are composed of hardscaped surfaces.

Therefore, for the purposes of this report, approximately 4.35 ac (1.76 ha) of unpaved surfaces have been assessed as part of the evaluation.

### **3.1.2.1. Soils**

According to the U.S. Department of Agriculture Soil Conservation Service's Soil Survey for Marin County, the Xerorthents-Urban Land Complex, 0 to 9 Percent Slopes soil type occurs within the Study Area (NRCS 2007) (see figure in Appendix A [Wetland Delineation Report]). This soil type is found on tidal flats and valley floors at elevations from 0–500 ft amsl. The typical depth to the restrictive layer, as well as the water table, is more than 80 in and there is no frequency of flooding or ponding. This soil found throughout the Study Area is considered to be a hydric soil in Marin County when found in salt marshes.

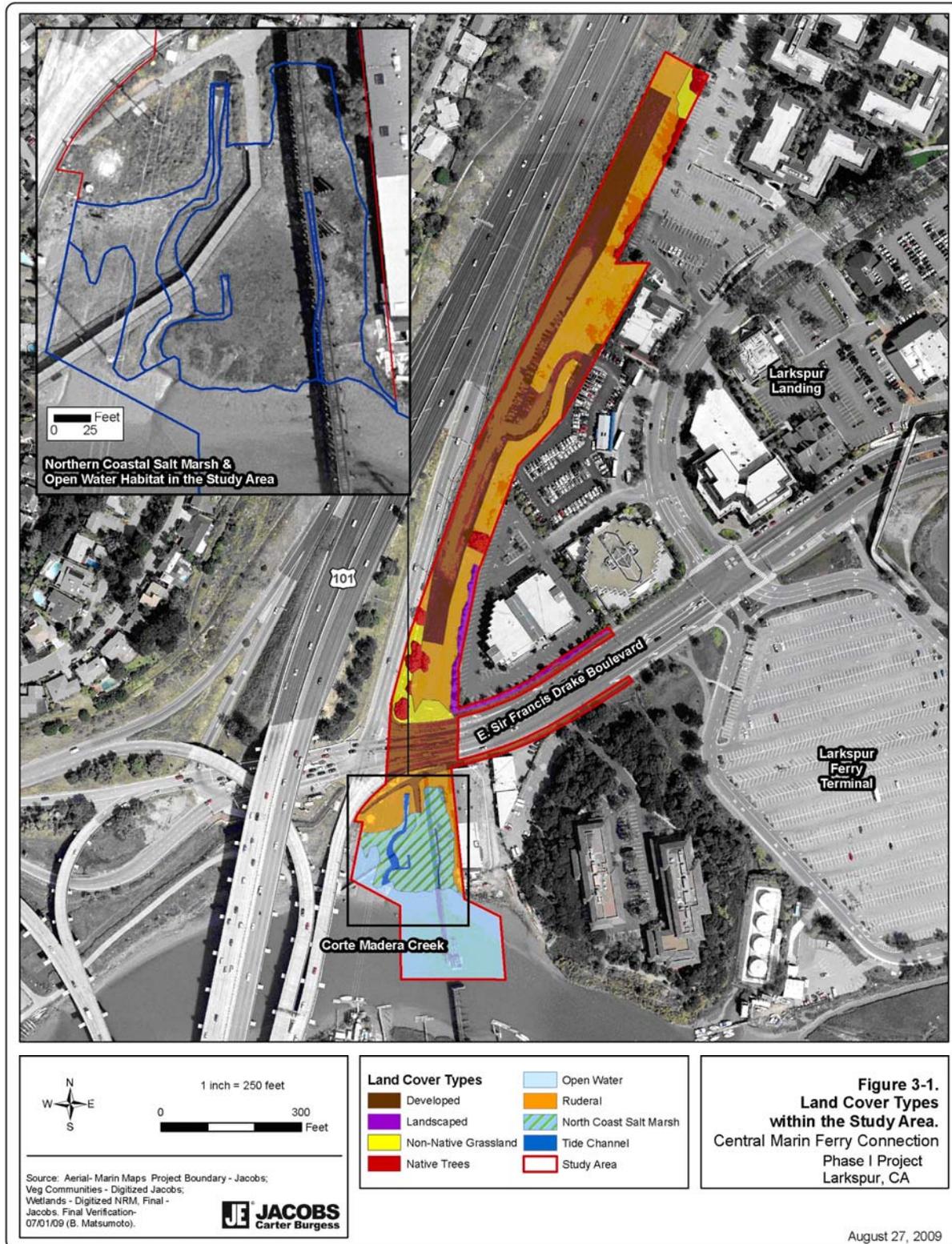
### **3.1.2.2. Hydrology**

Generally, the portion of the proposed project south of East SFDB contains aquatic and wetland habitats. Corte Madera Creek is the main perennial watercourse within the Study Area, which originates in the foothills of Mount Tamalpais and joins the San Francisco Bay in the Town of Larkspur. The tidal channels are located along the northern bank of the Corte Madera Creek and within the tidal salt marsh. The average annual precipitation for the area is 34 inches and the mean high water elevation is 2.5 feet. The study area is supported by seasonal rain and runoff in the northern portion and by the confluence of Corte Madera Creek and San Francisco Bay in the southern portion.

### **3.1.3. Biological Conditions in the Study Area**

Land cover types mapped in the Study Area include ruderal vegetation, tidal salt marsh, non-native grassland, native trees, and landscaped areas (Figure 3-1). The 4.35 ac (1.76 ha) of unpaved land mapped within the Study Area also includes aquatic communities (i.e., Corte Madera Creek and tidal channels). Table 3-1 shows the natural community types present within the Study Area and the area associated with each type in order of predominance.

Figure 3-1. Land Cover Types Within the Study Area.



**Table 3-1: Natural Community Types and Amounts in the Study Area**

Natural Community Type	Area (ac [ha])	Percent of Total Area
Ruderal	2.01 [0.81]	30
Open Water	1.03 [0.42]	15
Northern Coastal Salt Marsh (NCSM)	0.61 [0.25]	9
Non-native grassland	0.23 [0.09]	3
Native trees	0.22 [0.09]	3
Ornamental/Landscaped	0.19 [0.08]	3
Tidal Channels	0.06 [0.02]	1
<b>Total</b>	<b>4.35 [1.76]</b>	<b>64 (±1)</b>

### 3.1.3.1. Ruderal Vegetation/French Broom Scrub

Ruderal vegetation is the term used to describe roadside vegetation composed of primarily upland weedy non-native grasses and forbs. It is not a natural vegetation type and is not included in the Holland or Sawyer and Keeler-Wolf classification systems. Exotic and highly invasive species are common throughout the ruderal areas. Within the Study Area, ruderal vegetation is the predominant vegetation type, including such species as French broom (*Genista monspessulana*), sweet fennel (*Foeniculum vulgare*), Himalayan blackberry (*Rubus discolor*), and pampas grass (*Cortaderia jubata*). This community makes up approximately 30 percent of the total area.

### 3.1.3.2. Aquatic

Aquatic resources in the Study Area include wetlands (i.e., tidal salt marsh) and “other” waters (i.e., Corte Madera Creek and tidal channels). There are a total of 1.70 ac (0.69 ha) of WUS within the study area, which includes 0.61 ac (0.25 ha) of wetlands and 1.09 ac (0.44 ha) of “other” waters. Corte Madera Creek is a perennial brackish creek that receives freshwater runoff from upstream as well as tidal influences from the San Francisco Bay. It is a perennial watercourse and is considered to be a Traditional Navigable Waterway. The creek is located in the southern portion of the Study Area and is approximately 300 feet wide and makes up approximately 6 percent of the total area. There are two tidal channels that originate from Corte Madera Creek and run north through the tidal salt marsh and range in size from 2–5 feet wide. The open waters of Corte Madera Creek and the tidal channels make up approximately 15 percent of the total area.

Northern Coastal Salt Marsh occurs along the coast from the California/Oregon border south to San Luis Obispo and is usually found along sheltered inland margins of bays, lagoons, and estuaries on hydric soils that are subject to regular tidal inundation by salt water for at least part of each year (Holland 1986). Species characteristic of this habitat type are: salt-marsh dodder (*Cuscuta salina*), saltgrass (*Distichilis spicata*), dwarf spikerush (*Eleocharis parvula*), alkali heath (*Frankenia grandifolia*), marsh gumplant (*Grindelia stricta*), and pickleweed (*Sarcocornia pacifica*), among others. This community makes up approximately 9 percent of the total area and includes the following species: pickleweed, fleshy jaumea, saltgrass, and Frankenia.

### 3.1.3.3. Non-native Grassland

This habitat is an upland type that consists of a dense to sparse cover of introduced annual grasses, mainly less than 3 ft in height (Holland 1986). This vegetation type sometimes includes remnants of native perennial grasses, and a diverse assemblage of native annual forbs (wildflowers). The comparable vegetation type described in Sawyer and Keeler-Wolf is the California Annual Grassland series (Sawyer, J. O., and T. Keeler-Wolf 1995). This community type makes up approximately three percent of the total area.

The dominant grasses identified in the Study Area include slender wild oat (*Avena barbata*), brome grasses (*Bromus hordeaceus*, *B. diandrus*), Mediterranean barley (*Hordeum marinum ssp. gussoneanum*), and Italian ryegrass (*Lolium multiflorum*). Non-native forbs including wild radish (*Rhaphanus sativus*), Italian thistle (*Carduus pycnocephalus*), and stork's bill (*Erodium cicutarium*) were also prevalent.

### 3.1.3.4. Native Trees

The Study Area contains three native species of trees; redwood (*Sequoia sempervirens*), California bay laurel (*Umbellularia californica*), and coast live oak (*Quercus agrifolia*). Non-native trees also are present in the Study Area, which includes *Eucalyptus globulus* and *Acacia* sp. This community type makes up approximately three percent of the total area. The types and locations of trees within the study area are included in Appendix B.

### 3.1.3.5. Ornamental/Landscaped

Within the Study Area, this community is composed mainly of ornamental shrubs and perennial herbaceous species, which have been planted along the north and south sides of East SFDB from

U.S. Highway 101 to Larkspur Landing Circle. Ornamental/landscaped areas make up approximately three percent of the total area.

#### **3.1.4. Regionally Occurring Special-Status Species of Concern**

For the purposes of this report, the region is described as the San Rafael 7.5-minute USGS quadrangle and the surrounding seven quadrangles (San Quentin, San Francisco North, Point Bonita, Bolinas, San Geronimo, Novato, and Petaluma Point). Searches of the USFWS Species List Database for the region, including Marin County, the CNDDDB for the region, and the CNPS Inventory of Rare and Endangered Plants for the region, were conducted to identify special-status species with potential to occur in the region.

A complete list of the special-status species that may occur in the region is included in Appendix D. As a result of the database search, 153 special-status species and/or their critical habitat, as well as four natural communities, have the potential to occur in the region of the Study Area. This table presents the status, general habitat requirements, and a determination with rationale as to whether or not suitable habitat and the species are present in the region.

The special-status species, natural communities, and critical habitats that were considered to have potential to occur in the Study Area are included in Table 3-2 below, which represents the results of a narrowed evaluation of the special-status biological resources that have potential to occur in the region. A species was considered to have potential to occur in the Study Area if their required habitat occurs or has historically occurred in the Study Area. A total of 10 regionally occurring special-status plant species, 23 special-status wildlife species, and 1 sensitive natural community were identified during these searches. The number of species per taxonomic group was as follows: plants (10), invertebrates (2), fish (3), birds (12), mammals (6), and sensitive natural communities (1). In addition, critical habitat has been proposed or designated for two federally listed fish species. Those species identified in Appendix D for which potentially suitable habitat was determined to be absent or for which presence is unlikely within the Study Area are not discussed further in this document.



**Table 3-2. Sensitive Natural Communities, Special-Status Species, and Critical Habitat with Potential to Occur or Known to Occur within the Study Area**

<i>Scientific name</i>	Common name	Status <sup>1</sup> Fed/State/ CDFG/ CNPS	General habitat description	Habitat Present/ Absent <sup>2,3</sup>	Rationale	Potential to Occur
<b>Sensitive Natural Communities</b>						
Northern coastal salt marsh	N/A	N/A	Herbaceous and suffrutescent, salt-tolerant hydrophytes forming moderate to dense cover and up to 1 meter tall. Usually segregated horizontally with <i>Spartina</i> sp. Nearer the open water, <i>Salicornia</i> at mid-littoral elevations, and a richer mixture closer to high ground.	HP	Northern coastal salt marsh is present in the Study Area.	High or Occurs/Present
<b>Plants</b>						
<i>Cordylanthus maritimus</i> ssp. <i>Palustris</i>	Point Reyes bird's-beak	-/-/1B.2	Coastal saltmarsh with <i>Salicornia</i> , <i>Distichilis</i> , <i>Jaumea</i> , <i>Spartina</i> , etc.	HP	Marginally suitable salt marsh habitat present in the Study Area. Occurrences located within a mile of Study Area, possibly extirpated. Species not detected during spring or summer botanical surveys (NRM 2008).	Low/Moderate
<i>Cordylanthus mollis</i> ssp. <i>mollis</i>	Soft bird's beak	FE/-/1B.2	Coastal salt marsh.	HP	Marginally suitable salt marsh habitat present in the Study Area. Species not detected during spring or summer botanical surveys (NRM 2008).	Low/Moderate
<i>Helianthella castanea</i>	Diablo helianthella	-/-/1B.2	Broad-leaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland.	HP	Marginally suitable grassland habitat present in the Study Area. Species not detected during spring and summer botanical surveys (NRM 2008).	Low/Moderate

<i>Scientific name</i>	<b>Common name</b>	<b>Status<sup>1</sup> Fed/State/ CDFG/ CNPS</b>	<b>General habitat description</b>	<b>Habitat Present/ Absent<sup>2,3</sup></b>	<b>Rationale</b>	<b>Potential to Occur</b>
<i>Hemizonia congesta ssp. congesta</i>	Pale yellow hayfield tarplant	-/-/1B.2	Valley and foothill grassland, sometimes roadsides.	HP	Marginally suitable grassland habitat present in the Study Area. Species not detected during spring and summer botanical surveys (NRM 2008).	Low
<i>Holocarpha macradenia</i>	Santa Cruz tarplant	FT/ST/-/1B.1	Coastal prairie, valley and foothill grassland with light, sandy soil or sandy clay.	HP	Marginally suitable grassland habitat present in Study Area. Occurrences located within two miles of Study Area. However, habitat and soils are extremely disturbed. Species not detected during spring or summer botanical surveys (NRM 2008).	Low
<i>Microseris paludosa</i>	Marsh microseris	-/-/1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland.	HP	Marginally suitable grassland habitat present in Study Area. Species not detected in spring and summer botanical surveys (NRM 2008).	Low
<i>Polygonum marinense</i>	Marin knotweed	-/-/3.1	Coastal salt marshes and swamps.	HP	Marginally suitable salt marsh habitat present in Study Area. Occurrences reported on the south shores of Corte Madera Creek outside of the Study Area. Species not detected during spring and summer botanical surveys (NRM 2008).	Low/ Moderate
<i>Sanicula maritima</i>	Adobe sanicle	-/SR/-/1B.1	Meadows and seeps, valley and foothill grassland, chaparral, coastal prairie. Occurrences possibly extirpated.	HP	Marginally suitable grassland habitat present in the Study Area. Species not detected during spring and summer botanical surveys (NRM 2008).	Low
<i>Silene verecunda ssp. verecunda</i>	San Francisco campion	-/-/1B.2	Coastal scrub, valley and foothill grassland, coastal bluff scrub, chaparral, coastal prairie.	HP	Marginally suitable grassland habitat present in the Study Area. Species not detected during spring and summer botanical surveys (NRM 2008).	Low

<i>Scientific name</i>	<b>Common name</b>	<b>Status<sup>1</sup> Fed/State/ CDFG/ CNPS</b>	<b>General habitat description</b>	<b>Habitat Present/ Absent<sup>2,3</sup></b>	<b>Rationale</b>	<b>Potential to Occur</b>
<i>Trifolium amoenum</i>	Two-fork clover	FE/-/1B.1	Valley and foothill grassland, coastal bluff scrub, sometimes on serpentine, open sunny sites, swales.	HP	Marginally suitable grassland habitat present in the Study Area. Species not detected during spring and summer botanical surveys (NRM 2008).	Low
<b>Invertebrates</b>						
<i>Trachusa gummifera</i>	N/A	-/-/SA/-	A leaf-cutter bee. Habitat unknown. Records exist from Marin County but possibly extirpated.	HP	The habitat is unknown, therefore there is potential for the habitat to be present in the Study Area. Not discussed below.	Low
<i>Tryonia imitator</i>	mimic tryonia (=California brackishwater snail)	-/-/SA/-	Inhabits coastal lagoons, estuaries and salt marshes, from Sonoma county south to San Diego county.	HP	Potentially Suitable habitat is present in Corte Madera Creek in the Study Area. Not discussed below.	Low/ Moderate
<b>Fish</b>						
<i>Eucyclogobius newberryi</i>	Tidewater goby	FE/-/SSC/-	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego Co. To the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, need stagnant water and high oxygen levels.	HP	One historical occurrence from Corte Madera Creek. Species is considered locally extirpated.	Low
<i>Oncorhynchus kisutch</i>	Central California Coast Coho salmon	FE/SE/-/-	Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water, and sufficient dissolved oxygen.	HP/CH/ EFH	Suitable breeding habitat is not present in the Study Area, however species may use study area for migration. Critical Habitat and EFH are located within the Study Area.	Moderate

<i>Scientific name</i>	<b>Common name</b>	<b>Status<sup>1</sup> Fed/State/ CDFG/ CNPS</b>	<b>General habitat description</b>	<b>Habitat Present/ Absent<sup>2,3</sup></b>	<b>Rationale</b>	<b>Potential to Occur</b>
<i>Oncorhynchus mykiss</i>	Central California Coast steelhead	FT/-/-/	From Russian River, south to Soquel Creek and to, but not including, Pajaro River. Also San Francisco and San Pablo Bay Basins.	HP/CH	Suitable breeding habitat is not present in the Study Area, however species may use study area for migration. Critical Habitat is located within the Study Area.	Moderate
<b>Birds</b>						
<i>Ardea alba</i>	great egret	-/-/SA/-	Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.	HP	Suitable foraging habitat is present in the Study Area.	High
<i>Ardea herodias</i>	great blue heron	-/-/SA/-	Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	HP	Suitable foraging habitat is present in the Study Area.	High
<i>Circus cyaneus</i>	Northern harrier	-/-/SSC/-	Coastal salt and freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge.	HP	Potentially suitable foraging habitat is present in the Study Area.	Low/ Moderate
<i>Egretta thula</i>	Snowy egret	-/-/SA/-	Rookery sites situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	HP	Suitable foraging habitat is present in the Study Area.	High
<i>Elanus leucurus</i>	White-tailed kite	-/-/FP/-	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	HP	Marginally suitable nesting and foraging habitat is present in the Study Area. Closest occurrence is 12 miles north.	Low

<i>Scientific name</i>	<b>Common name</b>	<b>Status<sup>1</sup> Fed/State/ CDFG/ CNPS</b>	<b>General habitat description</b>	<b>Habitat Present/ Absent<sup>2,3</sup></b>	<b>Rationale</b>	<b>Potential to Occur</b>
<i>Geothlypis trichas sinuosa</i>	Saltmarsh common yellowthroat	-/-SSC/-	Resident of the San Francisco Bay Region, in fresh and saltwater marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	HP	Marginally suitable foraging habitat is located in the Study Area.	Low
<i>Laterallus jamaicensis coturniculus</i>	California black rail	-/ST/-/-	Inhabits freshwater marshes, wet meadows, and shallow margins of saltwater marshes bordering larger bays. Needs water depths of ~1 in. That does not fluctuate during the year and dense vegetation for nesting habitat.	HP	Suitable breeding and nesting habitat is not present in the Study Area. However Study Area may be used as a dispersal corridor between reported occurrences to the west and southeast of the Study Area.	Moderate
<i>Melospiza melodia pusillula</i>	Alameda song sparrow	-/-SSC/-	Resident of salt marshes bordering south arm of San Francisco Bay.	HP	Marginally suitable habitat is located in the Study Area. However, species is restricted to southeastern portions of San Francisco Bay.	Low
<i>Melospiza melodia samuelis</i>	San Pablo song sparrow	-/-SSC/-	Resident of salt marshes along the north side of San Francisco and San Pablo Bays. Inhabits tidal sloughs in the <i>Salicornia</i> marshes; nests in <i>Grindelia</i> bordering slough channels.	HP	Marginally suitable foraging habitat is located in the Study Area.	Moderate
<i>Nycticorax nycticorax</i>	Black-crowned night heron	-/-SA/-	Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.	HP	Marginally suitable foraging habitat is located in the Study Area.	Moderate

<i>Scientific name</i>	<b>Common name</b>	<b>Status<sup>1</sup> Fed/State/ CDFG/ CNPS</b>	<b>General habitat description</b>	<b>Habitat Present/ Absent<sup>2,3</sup></b>	<b>Rationale</b>	<b>Potential to Occur</b>
<i>Phalacrocorax auritus</i>	Double-crested cormorant	-/-/SA/-	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	HP	Marginally suitable roosting and foraging habitat is present in the Study Area. No suitable nesting habitat in the Study Area.	Low
<i>Rallus longirostris obsoletus</i>	California clapper rail	FE/SE/FP/-	Salt-water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay.	HP	Suitable breeding and nesting habitat is not present in the Study Area. However Study Area may be used as a dispersal corridor between reported occurrences to the west and southeast of the Study Area. (Flett 2009)	Moderate
<b>Mammals</b>						
<i>Lasiurus blossevillii</i>	Western red bat	-/-/SSC/-	Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	HP	Marginally suitable roosting habitat present in the Study Area. No occurrences listed for Marin County.	Low
<i>Lasiurus cinereus</i>	Hoary bat	-/-/SA/-	Prefers open habitats or habitat mosaics, with access to trees for cover & open areas or habitat edges for feeding.	HP	Marginal suitable roosting and feeding habitat is present in the Study Area.	Low
<i>Microtus californicus sanpabloensis</i>	San Pablo vole	-/-/SSC/-	Saltmarshes of San Pablo Creek, on the south shore of San Pablo Bay. Constructs burrow in soft soil.	HP	Marginally suitable habitat present in the Study Area however all reported occurrences are across the bay along the south shore. Study area is outside the species current range.	Low

<i>Scientific name</i>	<b>Common name</b>	<b>Status<sup>1</sup> Fed/State/ CDFG/ CNPS</b>	<b>General habitat description</b>	<b>Habitat Present/ Absent<sup>2,3</sup></b>	<b>Rationale</b>	<b>Potential to Occur</b>
<i>Reithrodontomys raviventris</i>	Salt marsh harvest mouse	FE/SE/FP/-	Only in the saline emergent wetlands of San Francisco Bay and its tributaries.	HP	Marginally suitable habitat present in Study Area. However, there are little upland refugia available for the species.	Moderate
<i>Sorex ornatus sinuosus</i>	Suisun shrew	-/-/SSC/-	Tidal marshes of the northern shores of San Pablo and Suisun bay. Require dense low-lying cover and driftweed and other litter above the mean high tide line for nesting and foraging.	HP	Marginally suitable habitat present in Study Area.	Low
<i>Sorex vagrans halicoetes</i>	Salt-marsh wandering shrew	-/-/SSC/-	Saltmarshes of the south arm of San Francisco Bay.	HP	Marginally suitable habitat present in Study Area. Study area is outside the species current range.	Low
<p><b><sup>1</sup>Status Codes:</b>  <b>Federal Status</b>  <i>FE – Federally listed as endangered</i>  <i>FT – Federally listed as threatened</i>  <b>State Status</b>  <i>SE – State listed as endangered</i>  <i>ST – State listed as threatened</i>  <i>SR – State listed as rare</i>  <i>SSC – State species of Concern</i>  <b>Dept. of Fish &amp; Game (DFG) Status</b>  <i>FP – Fully protected</i>  <i>SA- Special animal</i></p>		<p><b>CNPS Status</b>            1A – Plants presumed extinct in California            1B – Plants rare, threatened, or endangered in California and elsewhere            2 – Plants rare, threatened, or endangered in California, but more common elsewhere            3 – Plants about which we need more information – a review list  <b>CNPS threat code extensions</b>            .1 – Seriously endangered in California.            .2 – Fairly endangered in California.            .3 – Not very endangered in California.  <sup>2</sup>Absent [A] - No habitat present and no further work needed.            Habitat Present [HP] - Habitat is, or may be present. The species may be present.            Present [P] - Species is present.</p>				
<p><b>Sources</b>  <i>CNDDDB 2009. Rarefind3. California Department of Fish and Game, Sacramento.</i>  <i>CNPS 2009. Inventory of Rare and Endangered Plants of California. Online edition, v6-05a. California Native Plant Society. Sacramento, CA.</i>  <i>USFWS 2005. “Endangered Species Lists.” May 2009.</i></p>						



### 3.1.5. Regional Plant Species of Concern

Spring and summer botanical surveys were conducted in 2008 in order to identify any special-status plants with the potential to occur in the Study Area. No special-status plants were identified during the survey. The majority of the Study Area is composed of relatively disturbed land, which is either developed or is dominated by non-native species. The salt marsh habitat is the only relatively undisturbed plant habitat in the Study Area and no special-status plants requiring salt marsh habitat were identified during the botanical surveys.

### 3.1.6. Regional Wildlife and Fish Species of Concern

Those species from Table 3-2 with potential to occur in the Study Area are discussed below in greater detail, with the exception of *Trachusa gummifera* and *Tryonia imitator* due to lack of available information.

#### 3.1.6.1. Tidewater Goby

The tidewater goby (TWG) was federally listed as an endangered species under the Federal Endangered Species Act (FESA) on March 7, 1994 (Federal Register 59:5494). Critical habitat was designated for the TWG on June 24, 1999 (Federal Register 65:69693). TWG are endemic to California and are found primarily in waters of coastal lagoons, estuaries, and marshes where the water is relatively still but not stagnant (Miller and Lea as cited in USFWS, 2005). They prefer a sandy substrate for breeding, but can also be found on rocky, mud, and silt substrates as well. Spawning peaks from late August through November at 13.5–21 C (56–70 F) in San Francisco Bay area streams (Moyle et al. as cited in USFWS, 2005). Vegetation within their preferred habitat is generally sparse and consists of submerged and emergent aquatic plants. The edges of dense vegetation may be used to escape predation. However, breeding sites are mostly in open unvegetated sand or silt substrates (Moyle et al as cited in USFWS, 2005). The open water of Corte Madera Creek in the Study Area may provide suitable migratory habitat for TWG; however, this species is considered to be extirpated from the area and their latest reported occurrence in Corte Madera Creek was in 1961.

#### 3.1.6.2. Central California Coast Steelhead

The CCCS was federally listed as a threatened species under the FESA on August 18, 1997 (Federal Register 62: 43937) and re-affirmed as a threatened species on January 5, 2006 (Federal Register 71:834). Critical habitat was designated for CCCS on September 2, 2005 (Federal

Register 70:52604). CCCS use two different freshwater habitat types: 1) primary habitat consists of shaded pools of small, cool, low-flow upstream reaches, 2) warm water habitats below some dams or pipeline outfalls, where summer releases provide high summer flows and fast-water feeding habitat (Smith 1999). Streams along the Central California Coast and in the San Francisco Bay Area may support winter-run anadromous CCCS (CFBD 2009). The CCCS range within California includes coastal streams from the Russian River in Sonoma County south to Soquel Creek in Santa Cruz County and tributaries of San Francisco and San Pablo bays (CFBD 2009). Corte Madera Creek does not provide suitable breeding habitat but may provide migratory corridor habitat for CCCS.

#### **3.1.6.3. Central California Coast Coho Salmon**

The Coho was federally listed as endangered under the FESA on October 31, 1996 (Federal Register 61:56138). Critical habitat for Coho was designated on May 5, 1999 (Federal Register 64: 24049) and EFH was designated August 1999. The largest numbers of Coho in California are currently found along the north coast in the Klamath, Trinity, Mad, Noyo, and Eel rivers (Moyle et al. 1989). Estuaries are essential habitat and both adult and juvenile Coho use them throughout their range in California (Sedell et al. as cited in CDFG 2002). All streams known or suspected to support Coho are characterized by cool summer water temperatures, distinct surface water connections to the estuarine and marine environments, as well as stream flows during the months of February through May (CDFG 2005). Coho no longer occupy many of the streams in California in which they used to occur, and remaining populations in other streams are greatly reduced (Hassler et al. as cited in CDFG 2002). Coho have not been reported in Corte Madera Creek since the early 1980's (Stern pers. comm.). Corte Madera Creek does not provide suitable breeding habitat, but it may provide migratory corridor habitat for Coho.

#### **3.1.6.4. California Clapper Rail**

The CCR was federally listed as endangered under the FESA on October 13, 1970 (Federal Register 35:16047). Currently, CCR are now restricted almost entirely to the marshes of the San Francisco estuary. In south San Francisco Bay, there are populations in all of the larger tidal marshes. Distribution in the North Bay is patchy and discontinuous, primarily in small, isolated habitat fragments. Small populations are widely distributed throughout San Pablo Bay (USFWS 1984). They are present sporadically and in low numbers at various locations throughout the Suisun Marsh Area (USFWS 1984). The Corte Madera Ecological Preserve (also known as Heerdt Marsh), which is located south of the Study Area, is one of the primary areas that provides habitat for breeding clapper rails in the Central Bay area (Albertson and Evens 2000).

Surveys conducted in 2007 confirmed the presence of CCR in the preserve, approximately 1,200 ft south of the Study Area. The tidal salt marsh habitat is not considered to be breeding habitat, but may serve as a dispersal corridor (Flett 2009).

#### **3.1.6.5. California Black Rail**

The CBR was state listed as threatened on June 27, 1971. The majority of CBR are found in the tidal salt marshes of the northern San Francisco Bay region, primarily in San Pablo and Suisun Bays (Evens et al. 1991). Smaller populations occur in San Francisco Bay, the outer coast of Marin County, freshwater marshes in the foothills of the Sierra Nevada, and in the Colorado River Area (Spautz et al., 2005). The tidal salt marsh habitat is not considered to be breeding habitat but may provide habitat that serves as a dispersal corridor.

#### **3.1.6.6. Migratory Birds**

The Migratory Bird Treaty Act (MBTA) (16 USC 703) protects migratory birds, their occupied nests, and their eggs. The project is located adjacent to the San Francisco Bay, which is part of the Pacific Flyway bi-annual waterfowl migration route. The marshes and mudflats of the San Francisco Bay in the city of Corte Madera provide feeding and roosting habitat for many migratory birds. Several special-status birds may forage and/or nest in non-native grassland, riparian or other vegetation communities within or adjacent to the Study Area. The following special-status species have potential to occur in the project area and are included in the MBTA list of migratory birds: Great egret (*Ardea alba*), Great blue heron (*Ardea herodias*), Northern harrier (*Circus cyaneus*), snowy egret (*Egretta thula*), white-tailed kite (*Elanus leucurus*), saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*), California black rail (*Laterallus jamaicensis coturniculus*), Alameda song sparrow (*Melospiza melodia pusillula*), San Pablo song sparrow (*Melospiza melodia samuelis*), black-crowned night heron (*Nycticorax nycticorax*), double-crested cormorant (*Phalacrocorax auritus*), and California clapper rail (*Rallus longirostris obsoletus*).

#### **3.1.6.7. Salt Marsh Harvest Mouse**

The salt marsh harvest mouse (SMHM) was federally listed as endangered under the FESA on October 13, 1970 (Federal Register 35:16047). As described in USFWS 2008, SMHM are found only around the San Francisco, San Pablo and Suisun Bays. The water in the wetlands and marshes of the Sacramento-San Joaquin Delta was probably too fresh to support the mice, therefore the Collinsville- Antioch area is the eastern limit of their distribution. SMHM are

critically dependent on dense cover and their preferred habitat is pickleweed, but are sometimes found in cordgrass or alkali bulrush (Shellhammer 1982). Areas of upland refugia are also needed to escape the rising water of the tides. Although salt marsh harvest mice are active mainly at night, they are sometimes active during daylight hours (USFWS 2008). The tidal salt marsh within the Study Area provides only marginally suitable habitat for SMHM, because there are very little upland refugia during high tides and the habitat is extremely fragmented.

#### **3.1.6.8. Western Red Bat**

The western red bat (*Lasiurus blossevillii*) is a state species of concern with marginal habitat available in the Study Area. This species commonly roosts along edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas (CDFG 2004). The abandoned railroad trestle and bridges in the southern portion of the area may serve as roosting structures. However, due to their sensitivity to disturbance, it is unlikely that these structures would provide suitable roosting habitat. In addition, there have been no reported occurrences in Marin County. The closest, and only, reported occurrence in the region is twelve miles south in San Francisco. This species is assumed to be absent from the Study Area due to lack of suitable habitat and is not discussed further in this report.

#### **3.1.6.9. Hoary Bat**

The hoary bat (*Lasiurus cinereus*) is a state species of concern with marginal habitat available in the Study Area. The hoary bat roosts in dense foliage of medium to large trees (CDFG 1999). This species is unlikely to roost in the Study Area due to the limited number of trees available and the highly disturbed nature of the Study Area. In addition, the only reported occurrence of the species in the region was last reported in 1948 and is three miles west of the Study Area. This species is assumed to be absent from the study area due to lack of suitable habitat and is not discussed further in this report.

#### **3.1.6.10. Suisun Shrew, Salt-marsh Wandering Shrews, and San Pablo Vole**

The Suisun shrew (*Sorex ornatus sinuosus*), the salt-marsh wandering shrew (*Sorex vagrans halicoetes*), and the San Pablo vole (*Microtus californicus sanpabloensis*) are state species of concern with marginal habitat available in the Study Area. As described by Zeiner (1990), all species inhabit salt and brackish marshes. The Suisun shrew inhabits marshes along the north shore of San Pablo and Suisun bays, approximately 12 to 14 miles north of the Study Area, across the bay. The salt-marsh wandering shrew and the San Pablo vole inhabit salt marshes of San Pablo Creek and along the eastern shore of San Pablo Bay, located six miles across the bay to the east. All three species are dependent upon dense cover of pickleweed and upland refugia

to escape the tides. According to the CNDDDB, all known occurrences of these species are located in or near the San Pablo Bay. There are no reported occurrences within Marin County or the San Rafael Quadrangle. In addition, there are no upland refugia available in the Study Area. These species are assumed to be absent from the study area because of the extreme habitat fragmentation, lack of suitable upland refugia, and the Study Area is outside of the species' reported ranges. These species are not discussed further in the report.

#### **3.1.6.11. Designated Critical Habitat/Essential Fish Habitat**

Critical habitat was designated for CCCS on September 2, 2005 (Federal Register 70:52604). Critical habitat was designated for Coho on May 5, 1999 (Federal Register 64: 24049) and EFH was designated August 1999. Within southern portion of the Study Area, Corte Madera Creek is identified as critical habitat for both species and EFH for Coho.

## Chapter 4. Biological Resources, Discussion of Impacts and Mitigation

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This chapter addresses the potential impacts and proposed mitigation measures identified for biological resources that occur within the Study Area. The proposed project would result in direct, indirect, temporary, and permanent impacts to sensitive natural resources within the Study Area.

### 4.1. Temporary and Permanent Impacts

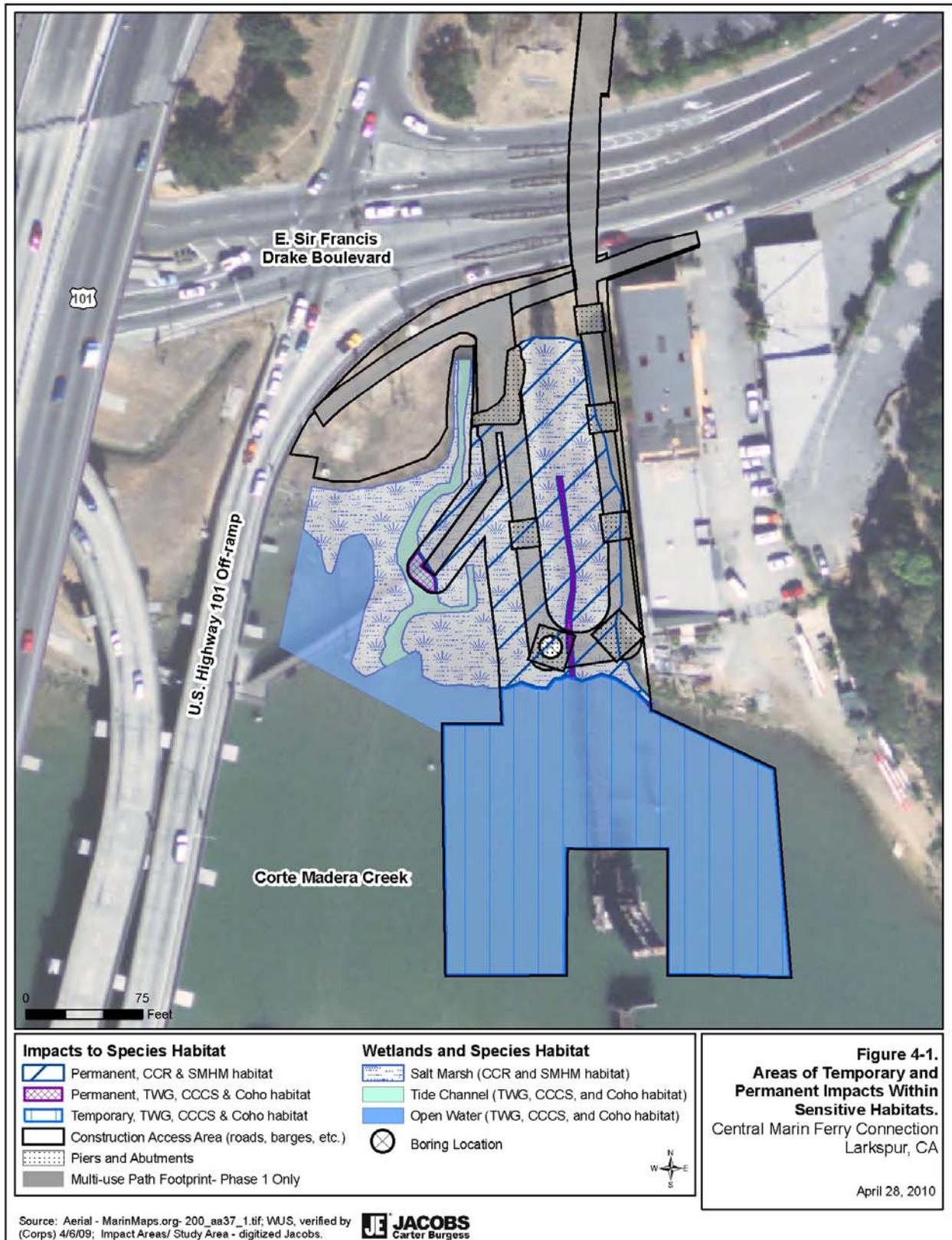
Temporary impacts are defined as project activities that would result in the temporary removal of one or more of the essential components of a habitat for a listed species, but would be restored to pre-project conditions of equal or greater habitat value. In order for the impacts to be considered temporary, the affected habitat of the listed species must be totally restored within one season, or one year from the date of project related disturbance. All work associated with the geotechnical survey has been categorized as temporary for the following reasons: no permanent structures would be installed within the salt marsh and open water habitats, the duration of the work is estimated to be relatively short (i.e., 2 days), and the impacted area would be expected to return to pre-construction conditions within one year. The work associated with the installation of the construction access area within Corte Madera Creek for the multi-use pathway is also considered to be temporary because no permanent structures would be placed within the creek and the area would be returned to pre-construction conditions within a year from the date of project related disturbance.

Permanent impacts are defined as project activities that would permanently displace existing habitat for a special-status species or would temporarily remove habitat components, for more than one season or a year (i.e. construction activities and restoration of the habitat would not occur within one season or a year from the date of project related disturbance). All work associated with the construction of the multi-use pathway within the salt marsh area has been categorized as permanent because permanent structures would be placed within the marsh and restoration of the area would not be completed within one year. See Table 4-1 for a summary of the temporary and permanent impacts associated with each construction activity and Figure 4-1 for locations of temporary and permanent impacts within sensitive habitats.

Table 4-1. Construction Activity Impact Type Summary

<b>Construction Activity</b>	<b>Type of Impact</b>
<i>Geotechnical Investigation</i>	
Within Tidal Salt Marsh	Temporary
<i>Multi-use Pathway Construction</i>	
Temporary Access Area within Tidal Salt Marsh	Permanent
Temporary Access Area within Open Waters of Corte Madera Creek	Temporary
Placement of Permanent Support Structures within the Tidal Salt Marsh	Permanent

**Figure 4-1. Areas of Temporary and Permanent Impacts within Sensitive Habitats**



## **4.2. Direct and Indirect Impacts**

Direct impacts are immediate and typically result from ground disturbance and habitat loss associated with project construction. For this proposed project, they would include the installation of permanent structures, use of temporary construction access areas, temporary construction disturbances (i.e., turbidity, noise, dust, vibration), and the potential temporary use of a barge within Corte Madera Creek.

Indirect impacts typically occur during or after ground disturbing activities are completed and would include activities that could potentially result in alteration of habitat conditions outside the footprint of ground disturbing activities. For this project, indirect impacts would include disturbances related to an increase in pedestrian and bicycle traffic and human-generated trash, as well as the direct shading of Corte Madera Creek, tidal channels, and tidal salt marsh vegetation from the multi-use pathway.

## **4.3. Mitigation Measures**

Several project-wide mitigation measures have been developed to protect sensitive biological resources in, and immediately adjacent to, the Study Area. These mitigation measures would be implemented when construction activities could potentially impact these resources through direct or indirect mechanisms. Sensitive biological resources include WUS, known or suitable habitat for special-status species, designated critical habitat, and EFH. The mitigation measures would minimize direct and indirect impacts on individual species and/or their habitat and reduce the impacts below a significant level.

### **4.3.1. General Mitigation Measure–1: Establish Boundary for Work Area within Sensitive Habitat**

Barrier fencing will be established within the salt marsh habitat to delineate the boundary between where construction activities are allowed and prohibited. The fencing will prevent construction encroachment into the surrounding prohibited areas of the salt marsh and creek habitats. The construction specifications shall contain clear language that restricts construction-related activities, prohibits vehicle operation, material and equipment storage, and other surface-disturbing activities within the prohibited areas. In addition, hydrologic features (i.e., topographic depressions, roadside ditches, culverts, etc.) outside the Study Area will not be manipulated (i.e., re-routed, dredged, filled, graded, etc.). This will reduce potential impacts to

wetlands outside of the Study Area that may be hydrologically connected to wetlands within the Study Area.

#### **4.3.2. General Mitigation Measure–2: Implement Erosion Control Measures and Storm Water Pollution Prevention Plans**

A Stormwater Pollution Prevention Plan (SWPPP) and erosion control best management practices (BMPs) will be developed to minimize wind or water-related erosion. A SWPPP will be developed for the project, as is required by the Regional Water Quality Control Board (RWQCB) for all projects that have at least one acre of soil disturbance.

The following protective measures would be included in the SWPPP:

- No discharge of pollutants from vehicle and equipment cleaning will be allowed into the storm drain or water courses.
- Vehicle and equipment fueling and maintenance operations must be at least 100 feet from water courses, unless separated by a topographic or drainage barrier.
- Concrete waste will not be allowed into water courses and will be collected in washouts. Water from curing operations will be properly disposed of offsite.
- Dust control measures will be implemented, including the use of water trucks and the application of tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when required.
- Coir rolls will be installed along or at the base of slopes during construction to capture sediment.
- Protection of graded areas from erosion will occur using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas.
- Use of bio-filtration strips and swales to receive stormwater discharges from the adjacent roadway, or other impervious surfaces will be incorporated.

#### **4.3.3. General Mitigation Measure–3: Replant/Re-Seed to Stabilize Disturbed Area**

The applicant will immediately plant or re-seed all slopes affected by the proposed project with native grasses and shrubs to stabilize the slopes against erosion. Following construction, the applicant will install native plant species appropriate for the location of the disturbed area. Furthermore, the applicant shall comply with all applicable local tree ordinances.

#### **4.3.4. General Mitigation Measure–4: Replant/Re-Seed Salt Marsh Habitat**

The applicant will immediately plant or re-seed the salt marsh habitat along the north bank of Corte Madera Creek affected by the proposed project to revegetate the disturbed habitat. Following construction, the applicant will install native salt marsh plant species appropriate for the location of the disturbed area per an agency-approved Mitigation and Monitoring Plan.

#### **4.3.5. General Mitigation Measure–5: Provide Environmental Awareness Training**

Before the onset of construction activities, a qualified biologist will conduct an education program for all construction personnel. At a minimum the training will include:

- A description of CCR, CBR, SMHM, TWG, CCCS, and Coho and their habitats.
- The occurrence of these species within the Study Area, an explanation of the status of these species and protection under the FESA and CESA.
- The measures that are being implemented to conserve the species and their habitats as they relate to the work site, and the work site boundaries within which construction may occur.
- A fact sheet conveying this information will be prepared for distribution to the construction personnel and other project personnel who may enter the site.
- Upon completion of the program, personnel will sign a form stating that they attended the program and understand all the Mitigation measures and implications of the FESA and CESA.

#### **4.3.6. General Mitigation Measure–6: Restrictions on Construction Activities**

The following restrictions on construction activities shall be imposed:

- A speed limit of 15 miles per hour in unpaved areas of the Study Area will be enforced to reduce dust and excessive soil disturbance.
- Construction staging, storage, and parking areas will be located within the SMART ROW and outside of any prohibited work areas. Access routes and the number and size of staging and work areas will be limited to the minimum necessary to construct the proposed project. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.
- All food and food-related trash items will be enclosed in sealed trash containers and removed completely from the site at the end of each day.
- No pets from construction and project personnel will be allowed anywhere in the proposed project work area during construction.
- No firearms will be allowed on the project site except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.
- All equipment will be maintained in order to prevent leaks of automotive fluids such as gasoline, oils or solvents. A Spill Response Plan will be prepared. Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in designated locations at least 100 feet from wetlands and aquatic habitats.
- Servicing of vehicles and construction equipment including fueling, cleaning, and maintenance will occur at least 100 feet from any aquatic habitat unless they are separated by topographic or drainage barrier or unless they are located at an already existing gas station. Staging areas may occur closer to the project activities as required.
- Work within an inundated drainage, channel, or wetland or in-water work, will be conducted outside the Central and Northern California rainy season of October 15 through April 15.
- Construction in an inundated drainage will be conducted with coffer dams to isolate dewatered areas from active channel habitats.
- Use of herbicides will be restricted in the prohibited areas.

- To the maximum extent possible, nighttime construction will be minimized.

#### **4.3.7. General Mitigation Measure–7: USFWS-Approved Biologist**

A USFWS-approved biologist will be designated for the project and will be on-call during all construction activities that occur within the Study Area. Qualifications of the biologist(s) must be presented to the USFWS for review and written approval prior to groundbreaking at the project site. The biologist will perform pre-construction surveys. If requested, before, during, or upon completion of ground breaking and construction activities, the applicant shall allow access by USFWS personnel to the project site to inspect the project.

#### **4.3.8. General Mitigation Measure–8: Post Construction Compliance Form**

A post-construction compliance report prepared by the on-call biologist will be provided to the USFWS within forty (40) working days following project completion, or within sixty (60) calendar days of any break in construction activity lasting more than forty (40) working days.

#### **4.3.9. General Mitigation Measure–9: Wetland Mitigation**

To offset the impacts to the tidal salt marsh, habitat would be created, restored, or set aside in perpetuity in a ratio to be determined through coordination with the USACE and the USFWS. Alternately, mitigation credits may be purchased through a USFWS-approved mitigation bank, if available. If no mitigation bank is available, mitigation may be accomplished through support of existing or planned conservation projects within the region.

### **4.4. Natural Communities of Special Concern**

This section addresses the potential impacts and proposed mitigation measures identified for sensitive natural communities that occur within the Study Area. The proposed project would result in, temporary, permanent, direct, and indirect impacts to WUS, native trees, Coho critical habitat and EFH, and CCCS critical habitat.

#### **4.4.1. Waters of the U.S.**

As described in Section 3.1.3.2, the Study Area contains wetlands (tidal salt marsh) and “other” waters, which includes Corte Madera Creek and tidal channels.

#### 4.4.1.1. Survey Results

Surveys to determine the presence and extent of WUS were conducted on April 24 and July 2, 2008. A Wetland Delineation Report was approved by the USACE on July 1, 2009 (Appendix A). Following approval of the delineation, the project area was expanded to include an additional 0.68 ac (0.28 ha) within Corte Madera Creek (total=1.03 ac [0.42 ha]). The areas associated with WUS are shown in Table 3-1.

#### 4.4.1.2. Mitigation Measures

To reduce the potential impact of the proposed project on WUS, the following mitigation measures would be implemented:

- General Mitigation Measure–1: Establish Boundary for Work Area within Sensitive Habitat
- General Mitigation Measure–2: Implement Erosion Control Measures and Storm Water Pollution Prevention Plans
- General Mitigation Measure–4: Replant/Re-Seed Salt Marsh Habitat
- General Mitigation Measure–6: Restrictions on Construction Activities
- General Mitigation Measure–9: Wetland Mitigation

In addition to the general mitigation measures listed above, the following specific mitigation measures would be implemented to further reduce impacts on aquatic resources during project construction:

- Aquatic Resource Mitigation Measure–1: Conduct In-Stream Work between April 16 and October 14. Work within an inundated drainage or channel, or in-water work, will be conducted outside the Central and Northern California rainy season of October 15 through April 15.
- Aquatic Resource Mitigation Measure–2: Restore Flows Following the Completion of Construction. Following completion of the project, all materials used to maintain flow and divert water from the Study Area during the construction period, including, but not limited to, cofferdams, pipes, filter fabric, fill material, and gravel should be removed. All excess soil should be disposed at an approved upland site.

#### 4.4.1.3. Project Impacts

The geotechnical investigation and construction activities associated with the multi-use pathway would temporarily, permanently, directly, and indirectly impact WUS. Impacts associated with these activities are described below.

##### Geotechnical Investigation

The geotechnical investigation within the tidal salt marsh area would result in 0.04 ac (0.02 ha) of temporary impacts from the installation of a temporary access pathway (200 ft x 8 ft) to reach the boring location in the tidal salt marsh Figure 4-1. It is anticipated that the temporary access pathway would be constructed of material capable of supporting a rig-mounted vehicle and would be in place for a relatively short duration (less than a week). Upon completion of the investigation, the pathway would be removed and the area would be allowed to naturally return to pre-construction conditions. There are no anticipated permanent impacts to the tidal marsh area resulting from the geotechnical investigation. Areas of temporary and permanent impacts to WUS are described in Table 4-2.

Direct impacts to WUS from the geotechnical investigation would include the installation of a temporary access pathway within the tidal salt marsh and a potential temporary increase in turbidity within the creek. There are no anticipated indirect impacts associated with this aspect of the proposed project.

##### Construction of the multi-use pathway

The construction associated with the multi-use pathway within the tidal salt marsh area would permanently impact 0.03 ac (0.01 ha) of tidal salt marsh from the installation of pathway support structures (i.e., columns, footings, and piers). Additionally, 0.38 ac (0.15 ha) of tidal salt marsh would be temporarily disturbed from the installation of a temporary construction access area. Upon completion of the construction, the construction access area would be removed and the area would be restored to pre-construction conditions to the maximum extent possible.

The construction of the multi-use pathway would not occur within the open waters of Corte Madera Creek. However, the creek may be temporarily disturbed from the installation of a temporary construction area (e.g., use of a trestle and/or barge), which may be used to install the pathway within the tidal salt marsh. If used, the barge may require the installation of mooring posts within the creek to stabilize the vessel during construction. Upon completion of the construction, the barge would be removed and the area would be allowed to naturally return to

pre-construction conditions to the maximum extent possible. Areas of temporary and permanent impacts to WUS are described in Table 4-2.

Direct impacts to WUS from the construction activities would include the placement of permanent support structures associated with the multi-use pathway in the tidal salt marsh, installation of a temporary construction access area within the tidal salt marsh, potential temporary use of a barge within the creek, and a potential temporary increase in turbidity within the creek. Indirect impacts may also occur due to the anticipated increase in human generated trash in the salt marsh area and the increase in shading from the pathway, which may inhibit growth of vegetation within that portion of the tidal salt marsh.

**Table 4-2. Impacts to Waters of the U.S.**

WUS	Temporary Impacts (ac [ha])	Permanent Impacts (ac [ha])
<b><i>Geotechnical Investigation</i></b>		
Tidal salt marsh	0.04 [0.02]	N/A
Total	0.04 [0.02]	N/A
<b><i>Multi-use Pathway Construction</i></b>		
Tidal salt marsh	0.38 [0.15]	0.03 [0.01]
“Other” waters		
Corte Madera Creek	0.75 [0.31]	N/A
tidal channel	N/A	<0.01 [0.00]
Total	1.13 [0.45]	0.04 [<0.02]
<b>Total Impacts to all WUS</b>	<b>1.17 [&lt;0.48]</b>	<b>0.04 [&lt;0.02]</b>
Note: Impacts are subject to change and will be finalized prior to Clean Water Act, Section 404 permit issuance N/A: Not Applicable (no permanent impacts)		

**4.4.1.4. Compensatory Mitigation**

Impacts to the tidal salt marsh area within the Study Area would be mitigated in accordance with Section 404 of the Clean Water Act. Impacts to the open waters of Corte Madera Creek and the tidal channel would not be included in the mitigation. The temporary construction access area (0.38 ac [0.15 ha]) within the tidal salt marsh would be replanted and restored as described in General Mitigation Measure–4 and would not be included in the compensatory mitigation area. The area of tidal salt marsh subject to CWA Section 404 compensatory mitigation would include the area of permanent impact associated with the construction of the multi-use pathway (i.e., support structures) (0.03 ac [0.01 ha]). This would include the area associated with the pathway support structures (i.e., columns, footings, and piers). Habitat would be created, restored, or set aside in perpetuity to a ratio to be determined by the USACE to offset permanent impacts to the tidal salt marsh associated with the construction of the multi-use pathway. On-site mitigation opportunities are at best limited and more likely unavailable. Habitats would be created or restored offsite if available. .Alternately, mitigation credits may be purchased through an approved mitigation bank, if available. If no mitigation bank is available, mitigation may be accomplished through support of existing or planned conservation projects.

#### **4.4.2. Fish Passage**

The open channel of Corte Madera Creek has historically provided and currently provides passage for anadromous fish to upstream spawning areas. There are no other streams or potential fish passage waterways within the Study Area. According to Senate Bill 857 (October 2005), projects receiving state or federal funding from the Department of Transportation must complete a fish passage assessment report. At the time of the development of this document, no state or federal transportation funds were anticipated to be received for the proposed project. Therefore, there is no requirement for a formal fish passage assessment report for this project.

##### **4.4.2.1. Survey Results**

A fish passage assessment was not conducted nor required for the Study Area. However, According to CDFG's California Fish Passage Assessment Database Project (CalFish 2009 <http://dnn.calfish.org/ProgramsandProjects/FishPassageAssessment/tabid/97/Default.aspx>), there are no barriers to fish passage located within the Study Area. In addition, a visual inspection of the U.S. Highway 101 crossing over Corte Madera Creek shows that there are no existing barriers to fish passage. Although structures associated with a portion of an unused railroad trestle and the U.S. Highway 101 northbound and southbound bridges are located within the creek, they do not restrict the flow of water during low or high flow events. Fish can easily swim around the structures and continue migration up or down the creek. There are no elevation or grade changes as fish cross below the highway.

The proposed project would install support structures within the north bank of the creek, but would not create a barrier to fish passage. Temporary dewatering structures would be placed within the creek during the geotechnical investigation and construction of the multi-use pathway; however, no restrictions to fish passage are anticipated from the proposed project. Fish could easily swim around construction areas due to the width of the creek and the small footprint of the proposed project within the creek.

##### **4.4.2.2. Mitigation Measures**

Although the proposed project would not create a barrier to fish passage, the following mitigation measures would be implemented in order to maintain conditions within the creek and avoid impacts to fish mitigation in and around the project area:

- General Mitigation Measure–1: Establish Boundary for Work Area within Sensitive Habitat.

- General Mitigation Measure–2: Implement Erosion Control Measures and Storm Water Pollution Prevention Plans.
- General Mitigation Measure–6: Restrictions on Construction Activities.

In addition to the general mitigation measures listed above, the following specific mitigation measures would be implemented to further reduce impacts on fish passage during project construction:

- Aquatic Resource Mitigation Measure–1: Conduct In-Stream Work between April 16 and October 14.
- Aquatic Resource Mitigation Measure–2: Restore Flows Following the Completion of Construction.

#### **4.4.2.3. Project Impacts**

The proposed project would not have a substantial adverse impact to the fish passage. Additionally, the implementation of the previously mentioned mitigation measures would reduce any potential impacts to fish passage.

#### **4.4.2.4. Compensatory Mitigation**

The proposed project is not anticipated to have a substantial impact on fish passage. For this reason, compensatory mitigation beyond implementing the mitigation measures is not proposed.

#### **4.4.3. Trees**

A description of this natural community is provided in Section 3.1.3.4 of this document.

##### **4.4.3.1. Survey Results**

A tree survey was conducted on February 4, 2009. The species, location, number, and size (dbh) were recorded and are included in Appendix B.

#### **4.4.3.2. Mitigation Measures**

To reduce the potential impact of the proposed project on trees, the following mitigation measures would be implemented:

- General Mitigation Measure–2: Implement Erosion Control Measures and Storm Water Pollution Prevention Plans.
- General Mitigation Measure–3: Replant/Re-Seed Disturbed Areas.

In addition to the general mitigation measures listed above, the following specific mitigation measure would be implemented to further reduce impacts on trees during project construction:

- Tree Mitigation Measure–1: Work Shall Comply with Local Tree Removal Ordinances. The City of Larkspur Heritage Tree Ordinance stipulates that the removal of trees with a 50 inch circumference or greater, measured at two feet above grade requires a permit. Replacement of removed trees would occur at a ratio to be determined through coordination with the City of Larkspur.

The tree survey conducted by Jacobs measured the diameter at breast height (dbh), not the circumference at two feet above grade.

#### **4.4.3.3. Project Impacts**

The proposed project could potentially impact a total of 48 native trees with a dbh height of at least 4 inches. Permanent impacts to trees would include the removal of up to 16 coast live oak trees. Tree trimming may impact additional trees within the study area, but are not counted as part of the total number of impacted trees. The implementation of the previously mentioned mitigation measures would reduce any potential impacts to trees.

#### **4.4.3.4. Compensatory Mitigation**

Mitigation measures for the loss of individual trees may include compliance with tree ordinance mitigation guidelines and project specific permit requirements. There is no compensatory mitigation required for temporary disturbance to trees resulting from trimming unless the trimming results in tree mortality, in which case, the total number of trees permanently impacted would increase by the number of trees lost due to trimming.

#### **4.4.4. Noxious Weeds**

Construction activities may introduce or spread noxious weeds (non-native, invasive plants) into currently un-infested areas. According to Executive Order 13112, if the potential to spread or promote invasive species exists, then the proposed project must implement all feasible and prudent measures to minimize this impact.

##### **4.4.4.1. Survey Results**

Focused surveys for noxious weeds have not been conducted for the proposed project; however, botanists identified the presence of non-native invasive plants during botanical surveys within the Study Area. High priority and common invasive plant species within the Study Area are identified in Chapter 5, Section 5.5 (Table 5-2).

##### **4.4.4.2. Mitigation Measures**

To reduce the potential impact of the proposed project on noxious weeds, the following mitigation measures would be implemented:

- General Mitigation Measure–2: Implement Erosion Control Measures and Storm Water Pollution Prevention Plans.
- General Mitigation Measure–3: Replant/Re-Seed Disturbed Areas.

In addition to the general mitigation measures listed above, the following specific mitigation measure would be implemented to further reduce impacts on noxious weeds during project construction:

- Noxious Weeds Mitigation Measure–1: Minimize Dispersal of Noxious Weeds into Un-infested Areas. Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weeds. Identify areas with populations of high priority noxious weed infestations and flag areas for easy identification by construction crews. Clean construction equipment after leaving areas with high priority noxious weeds.

##### **4.4.4.3. Project Impacts**

High priority noxious weeds may be dispersed via equipment during proposed project construction activities. If noxious weeds or additional weeds become established on, or near the

Study Area, these populations may invade wildlands, and potentially degrade existing habitat for special-status plant and animal species. The spread of noxious weeds could result in a reduction or elimination of species diversity or abundance in adjacent areas. Implementation of the proposed mitigation measures would reduce the potential for adverse cumulative impacts of the proposed project relating to the spread of noxious weeds.

#### **4.4.4.4. Compensatory Mitigation**

No additional compensatory mitigation is required for this impact.

#### **4.4.5. Designated Critical Habitat and Essential Fish Habitat**

The southern portion of the Study Area includes critical habitat for USFWS-designated CCCS and Coho and EFH for Coho.

##### CCCS

Corte Madera Creek has been designated as critical habitat for the CCCS evolutionary significant unit, which includes all naturally spawned populations from the Russian River in Sonoma County through and including Soquel Creek in Santa Cruz County. The Study Area is located within the Bay Bridges Hydrologic Unit. This includes all Steelhead in San Pablo and San Francisco Bays. For the purposes of this study, the limits of the designated critical habitat include the open waters of Corte Madera Creek and the tidal channels up to the mean high tide line, but not the tidal salt marsh habitat.

##### Coho

Critical habitat for the Central California Coast evolutionary significant unit encompasses accessible reaches of all rivers between Punta Gorda and the San Lorenzo River in California, including two streams entering San Francisco Bay: Arroyo Corte Madera Del Presidio and Corte Madera Creek. The Study Area is located within the San Pablo Bay Hydrologic Unit. Corte Madera Creek has also been designated as EFH for this species. For the purposes of this study, the limits of the designated critical habitat and EFH include the open waters of Corte Madera Creek and the tidal channels up to the mean high tide line, but not the tidal salt marsh habitat.

#### 4.4.5.1. Mitigation Measures

To reduce the potential impacts of the proposed project on critical habitat for CCCS and Coho and EFH for Coho, the following mitigation measures would be implemented:

- General Mitigation Measure–1: Establish Boundary for Work Area within Sensitive Habitat.
- General Mitigation Measure–2: Implement Erosion Control Measures and Storm Water Pollution Prevention Plans.
- General Mitigation Measure–3: Replant/Re-Seed to Stabilize Disturbed Area.
- General Mitigation Measure–4: Replant/Re-Seed Salt Marsh Habitat.
- General Mitigation Measure–5: Provide Environmental Awareness Training.
- General Mitigation Measure–6: Restrictions on Construction Activities.
- General Mitigation Measure–7: USFWS-Approved Biologist.
- General Mitigation Measure–8: Post Construction Compliance Form.

In addition to the general mitigation measures listed above, the following specific mitigation measures would be implemented to further reduce impacts on critical and essential fish habitats during project construction:

- Fish Mitigation Measure–1: Work in Live Streams Shall be Minimized. If it is necessary to conduct work in a live stream, the workspace shall be isolated to avoid construction activities in flowing water. The proposed project shall allow fish passage past the project area. Adequate water depth and channel width must be maintained at all times for fish passage. Prior to construction activities, the workspace will be isolated from flowing water to prevent sedimentation and turbidity and avoid impacts to fish. The diversion shall remain in place during the project and be removed immediately after work is completed, in a manner that will allow flow to resume with the least disturbance to the substrate.
- Fish Mitigation Measure–2: Dewatering. If dewatering any area is required, either a pump shall remove water to an upland disposal site, or a filtering system shall be used to collect the water and return clear water to the creek. The pump intake shall be fitted with

a fish exclusion device that meets the National Marine Fisheries Service (NMFS) fish screening criteria.

- Fish Mitigation Measure–3: Presence of Biologist during Dewatering. During dewatering activities a fisheries biologist shall be present to salvage individuals, should they be present. Fish will be netted, placed in a bucket of water and immediately moved to a downstream portion of the creek. Records of species, relative size, and number of individuals shall be kept. Periodic checks of the work area shall occur to ensure that fish have not re-entered the work area.
- Fish Mitigation Measure–4: Placement of Non-toxic Structures in Streams. All materials placed in the stream, such as pilings and retaining walls, shall be non-toxic. Any combination of wood, plastic, cured concrete, steel pilings or other materials used for in-channel structures shall not contain coatings or treatments or consist of substances deleterious to aquatic organisms that may leach into the surrounding environment in amounts harmful to aquatic organisms.
- Fish Mitigation Measure–5: Minimize Disturbance from Construction Access. Disturbance to existing grades and vegetation will be limited to the actual site of the project and necessary access routes. Placement of all roads, staging areas, and other facilities shall avoid and limit disturbance to streambank or stream channel habitat as much as possible. When possible, existing ingress or egress points shall be used and/or work performed from the top of the creek banks. Obvious barriers to fish passage should be removed to facilitate upstream movement.
- Fish Mitigation Measure–6: Erosion Control. Erosion control and sediment detention devices (e.g., well-anchored sandbag cofferdams, straw bales, “Aqua Dam,” or silt fences) shall be incorporated into the project design and implemented at the time of construction. These devices shall be in place during construction activities, and after if necessary, for the purposes of minimizing fine sediment and sediment/water slurry input to flowing water, and of detaining sediment laden water on-site. These devices will be placed at all locations where the likelihood of sediment input exists. A supply of erosion control materials will be kept on hand to cover small sites that may become bare and to respond to sediment emergencies.

#### **4.4.5.2. Project Impacts**

Project activities within the critical habitat and EFH would involve construction associated with the multi-use pathway only. The construction is anticipated to result in 0.75 ac (0.30 ha) of temporary impacts to Corte Madera Creek from the potential use of a barge and 0.02 ac (0.01 ha) of permanent impacts to the tidal channels from the permanent placement of the support structures associated with the multi-use pathway. Direct impacts may occur as a result of the placement of permanent structures within the tidal channels, an increase in turbidity within the creek from sediment runoff, noise disturbance, and ground vibrations during construction. Indirect impacts may also occur due to the potential for an increase in human-generated trash and once installed, the multi-use pathway may increase the shading of a portion of Corte Madera Creek and a tidal channel.

However, the impacts within the creek would be relatively minor and located along the north bank, which is of relatively low quality due to historic urbanization of the area. Thus, the proposed project would not have a substantial adverse impact to the designated critical habitat or EFH. Additionally, the implementation of the mitigation measures would reduce any impacts to critical habitat and EFH.

#### **4.4.5.3. Compensatory Mitigation**

The proposed project would not result in a substantial impact to CCCS or Coho critical habitat and EFH for Coho and compensatory mitigation beyond implementation of the mitigation measures is not proposed.

### **4.5. Special-status Plant Species Occurrences**

There are no special-status plant species occurrences within the Study Area, therefore there would be no impacts from the proposed project and no mitigation is required for special-status plant species.

### **4.6. Special-status Wildlife Species Occurrences**

#### **4.6.1. Tidewater Goby**

A description of this species is provided in section 3.2.3.1 of this document.

#### **4.6.1.1. Survey Results**

No formal surveys for the TWG were conducted as part of this project. However, the southern portion of the Study Area does contain potentially suitable habitat for TWG. This species was collected in Corte Madera Creek in 1961 (USFWS 2005) and occurrences were noted in 1984 (CNDDDB 2008). However, the nearest extant population is located within Rodeo Lagoon, which is located approximately eight miles to the southeast (CNDDDB 2009). The RWQCB considers Corte Madera Creek to be “Water Quality Limited” and the TWG is considered to be extirpated from the creek (USFWS 2005).

#### **4.6.1.2. Mitigation Measures**

To reduce the potential impact of the proposed project on TWG, the following mitigation measures would be implemented:

- General Mitigation Measure–1: Establish Environmentally Sensitive Areas.
- General Mitigation Measure–2: Implement Erosion Control Measures and Storm Water Pollution Prevention Plans.
- General Mitigation Measure–3: Replant/Re-Seed to Stabilize Disturbed Area.
- General Mitigation Measure–4: Replant/Re-Seed Salt Marsh Habitat.
- General Mitigation Measure–5: Provide Environmental Awareness Training.
- General Mitigation Measure–6: Restrictions on Construction Activities.
- General Mitigation Measure–7: USFWS-Approved Biologist.
- General Mitigation Measure–8: Post Construction Compliance Form.

In addition to the general mitigation measures listed above, the following specific mitigation measures would be implemented to further reduce impacts on TWG during project construction:

- Fish Mitigation Measure–1: Work in live streams shall be minimized.
- Fish Mitigation Measure–2: Use of a filtration system during dewatering.
- Fish Mitigation Measure–3: Placement of construction materials within stream.

- Fish Mitigation Measure–4: Disturbance from placement of roads, staging areas, and other facilities shall be minimized.
- Fish Mitigation Measure–5: Implementation of erosion control.
- Fish Mitigation Measure–6: Fish salvage during construction activities by a USFWS biologist.

#### **4.6.1.3. Project Impacts**

Project activities within this area would involve construction associated with the multi-use pathway only. The construction is anticipated to result in 0.75 ac (0.30 ha) of temporary impacts to Corte Madera Creek from the potential use of a barge and 0.02 ac (0.01 ha) of permanent impacts to the tidal channels from the permanent placement of the support structures associated with the multi-use pathway. Direct impacts may occur as a result of the placement of permanent structures within the tidal channels, an increase in turbidity within the creek from sediment runoff, noise disturbance, and ground vibrations during construction. Indirect impacts may also occur due to the potential for an increase in human-generated trash and once installed, the multi-use pathway may increase the shading of a portion of Corte Madera Creek and a tidal channel.

However, the impacts from the proposed project would be relatively minor and located along the north bank in an area that has already been relatively disturbed. Thus, the proposed project would not have a substantial adverse impact to the TWG. Additionally, the implementation of the mitigation measures would further reduce any potential impacts to this species.

#### **4.6.1.4. Compensatory Mitigation**

The proposed project would not result in a substantial impact to TWG because the impacts are relatively minor and the species is considered to be extirpated from the creek. Thus, compensatory mitigation beyond implementing the previously mentioned mitigation measures (Section 4.6.1.2) is not proposed.

### **4.6.2. Central California Coast Steelhead**

A description of this species is provided in section 3.2.3.2 of this document.

#### 4.6.2.1. Survey Results

No formal surveys for CCCS were conducted as part of this project. However, the southern portion of the Study Area does contain designated critical habitat for CCCS. Stream surveys conducted by the CDFG from 1960 through 1980 indicated that steelhead were present in Corte Madera Creek. Additional surveys were conducted by the RWQCB staff in 1992 and Rich in 1999 (Rich 2000) reported that CCCS were present within Corte Madera Creek. According to Friends of Corte Madera Creek (FCMC), observations from members included sightings of CCCS in the nearby Ross, San Anselmo, and Tamalpais Creeks in 2004; however, no CCCS sightings were reported in Corte Madera Creek at that time (FCMC 2004).

#### 4.6.2.2. Mitigation Measures

To reduce the potential impact of the proposed project on CCCS, the following mitigation measures would be implemented:

- General Mitigation Measure–1: Establish Environmentally Sensitive Areas.
- General Mitigation Measure–2: Implement Erosion Control Measures and Storm Water Pollution Prevention Plans.
- General Mitigation Measure–3: Replant/Re-Seed to Stabilize Disturbed Area.
- General Mitigation Measure–4: Replant/Re-Seed Salt Marsh Habitat.
- General Mitigation Measure–5: Provide Environmental Awareness Training.
- General Mitigation Measure–6: Restrictions on Construction Activities.
- General Mitigation Measure–7: USFWS-Approved Biologist.
- General Mitigation Measure–8: Post Construction Compliance Form.

In addition to the general mitigation measures listed above, the following specific mitigation measures would be implemented to further reduce impacts on CCCS during project construction:

- Fish Mitigation Measure–1: Work in live streams shall be minimized.
- Fish Mitigation Measure–2: Use of a filtration system during dewatering.
- Fish Mitigation Measure–3: Placement of construction materials within stream.

- Fish Mitigation Measure–4: Disturbance from placement of roads, staging areas, and other facilities shall be minimized.
- Fish Mitigation Measure–5: Implementation of erosion control.
- Fish Mitigation Measure–6: Fish salvage during construction activities by a USFWS biologist.

#### **4.6.2.3. Project Impacts**

Corte Madera Creek and tidal channels may provide potentially suitable habitat for CCCS. Project activities within this area would involve construction associated with the multi-use pathway only. The construction is anticipated to result in 0.75 ac (0.30 ha) of temporary impacts to Corte Madera Creek from the potential use of a barge and 0.02 ac (0.01 ha) of permanent impacts to the tidal channels from the permanent placement of the support structures associated with the multi-use pathway. Direct impacts may occur as a result of the placement of permanent structures within the tidal channels, an increase in turbidity within the creek from sediment runoff, noise disturbance, and ground vibrations during construction. Indirect impacts may also occur due to the potential for an increase in human-generated trash and once installed, the multi-use pathway may increase the shading of a portion of Corte Madera Creek and a tidal channel.

However, the impacts from the proposed project would be relatively minor and located along the north bank in an area that has already been relatively disturbed. Thus, the proposed project would not have a substantial adverse impact to CCCS. Additionally, the implementation of the mitigation measures would further reduce any impacts to this species.

#### **4.6.2.4. Compensatory Mitigation**

The proposed project would not result in a substantial impact to CCCS because the impacts are relatively minor. For this reason, compensatory mitigation beyond implementing the previously mitigation measures (Section 4.6.2.2) is not proposed.

### **4.6.3. Central California Coast Coho Salmon**

A description of this species is provided in section 3.2.3.3 of this document.

#### **4.6.3.1. Survey Results**

No formal surveys for Coho were conducted as part of this project. However, the southern portion of the Study Area does contain designated critical habitat and EFH for Coho. Corte Madera Creek has historically supported runs of Coho, which were observed in the watershed until the early 1980s. From 1980–1995, only a single Coho was collected in 1980 in the San Pablo Bay (Baxter et al. 1999). Leidy (1984) collected and released Coho from lower Corte Madera Creek in 1981. The fish were collected from a relatively long, moderately deep, well-shaded pool with a gravel-cobble substrate. In January 1986, fourteen adult Coho were observed in Corte Madera Creek, but these fish may have originated from a 1983 transplant of Coho fry from nearby Lagunitas Creek (Leidy et al., 2005). Several anecdotal records for the occurrence of Coho have been documented in tributaries of Corte Madera Creek, which included Ross, San Anselmo, Sleepy Hollow, Fairfax, and Cascade creeks (Rich 2000). However, they are considered to have been extirpated from the watershed, likely in part due to the construction of the flood control channel in lower Corte Madera Creek in the late 1960s and early 1970s (Leidy et al., 2005).

#### **4.6.3.2. Mitigation Measures**

To reduce the potential impact of the proposed project on Coho, the following mitigation measures would be implemented:

- General Mitigation Measure–1: Establish Environmentally Sensitive Areas.
- General Mitigation Measure –2: Implement Erosion Control Measures and Storm Water Pollution Prevention Plans.
- General Mitigation Measure –3: Replant/Re-Seed to Stabilize Disturbed Area.
- General Mitigation Measure –4: Replant/Re-Seed Salt Marsh Habitat.
- General Mitigation Measure –5: Provide Environmental Awareness Training.
- General Mitigation Measure –6: Restrictions on Construction Activities.
- General Mitigation Measure –7: USFWS-Approved Biologist.
- General Mitigation Measure –8: Post Construction Compliance Form.

In addition to the general mitigation measures listed above, the following specific mitigation measures would be implemented to further reduce impacts on Coho during project construction:

- Fish Mitigation Measure –1: Work in live streams shall be minimized.
- Fish Mitigation Measure –2: Use of a filtration system during dewatering.
- Fish Mitigation Measure –3: Placement of construction materials within stream.
- Fish Mitigation Measure –4: Disturbance from placement of roads, staging areas, and other facilities shall be minimized.
- Fish Mitigation Measure –5: Implementation of erosion control.
- Fish Mitigation Measure –6: Fish salvage during construction activities by a USFWS biologist.

#### **4.6.3.3. Project Impacts**

Corte Madera Creek and tidal channels may provide potentially suitable habitat for Coho. Project activities within this area would involve construction associated with the multi-use pathway only. The construction is anticipated to result in 0.75 ac (0.30 ha) of temporary impacts to Corte Madera Creek from the potential use of a barge and 0.02 ac (0.01 ha) of permanent impacts to the tidal channels from the permanent placement of the support structures associated with the multi-use pathway. Direct impacts may occur as a result of the placement of permanent structures within the tidal channels, an increase in turbidity within the creek from sediment runoff, noise disturbance, and ground vibrations during construction. Indirect impacts may also occur due to the potential for an increase in human-generated trash and once installed, the multi-use pathway may increase the shading of a portion of Corte Madera Creek and a tidal channel.

However, the impacts from the proposed project would be relatively minor and located along the north bank in an area that has already been relatively disturbed. Thus, the proposed project would not have a substantial adverse impact to Coho. Additionally, the implementation of the previously mitigation measures would further reduce any impacts to this species.

#### **4.6.3.4. Compensatory Mitigation**

The proposed project would not result in a substantial impact to Coho because the impacts are relatively minor. For this reason, compensatory mitigation beyond implementing the mitigation measures is not proposed.

#### **4.6.4. California Clapper Rail**

A description of this species is provided in section 3.2.3.4 of this document.

##### **4.6.4.1. Survey Results**

Surveys for CCR were conducted within the Study Area on February 19, March 5, March 19, and March 23, 2009. No CCR were detected during these surveys. The Corte Madera Ecological Preserve, located south of the Study Area, is one of the primary areas that provides habitat for breeding California clapper rails in the Central Bay area (Albertson and Evens 2000). Surveys conducted in 2007 confirmed the presence of CCR in the Corte Madera Ecological Preserve, approximately 1,200 ft south of the Study Area.

The only habitat within the limits of the proposed project that could potentially be used by CCR is located in the southern portion of the Study Area. The extent and quality of this habitat has been reduced by human development and disturbance, and there is very little buffer between the marsh and traffic and traffic noise from the freeway interchange and adjacent roads. Additionally, the channels within the marsh are not well developed, and there is a relatively low density of emergent aquatic vegetation present. These factors indicate that the Study Area contains relatively poor habitat, which is not suitable for breeding. However, it may be used as a dispersal corridor because of the proximity to known breeding habitat south of the Study Area in the Corte Madera Ecological Preserve.

##### **4.6.4.2. Mitigation Measures**

To reduce the potential impact of the proposed project on CCR, the following mitigation measures would be implemented:

- General Mitigation Measure–1: Establish Environmentally Sensitive Areas.
- General Mitigation Measure–2: Implement Erosion Control Measures and Storm Water Pollution Prevention Plans.

- General Mitigation Measure–3: Replant/Re-Seed to Stabilize Disturbed Area.
- General Mitigation Measure–4: Replant/Re-Seed Salt Marsh Habitat.
- General Mitigation Measure–5: Provide Environmental Awareness Training.
- General Mitigation Measure–6: Restrictions on Construction Activities.
- General Mitigation Measure–7: USFWS-Approved Biologist.
- General Mitigation Measure–8: Post Construction Compliance Form.
- General Mitigation Measure–9: Wetland Mitigation

In addition to the general mitigation measures listed above, the following specific mitigation measures would be implemented to further reduce impacts on CCR during project construction:

- CCR Mitigation Measure-1: Construction Avoidance Timeline. To the extent feasible, construction activities within permitted work areas shall occur between September 1 and February 28 to reduce potential impacts to CCR breeding/nesting season. If construction must occur during the period from March 1 to August 31, a qualified wildlife biologist shall conduct pre-construction surveys for nesting birds. If an active nest is found, the bird shall be identified to species and the approximate distance from the closest work site to the nest estimated. No additional measures need be implemented if active nests are more than 300 ft from the nearest work site. If active nests are closer than 300 ft to the nearest work site and there is the potential for destruction of a nest or substantial disturbance to nesting birds due to construction activities, a plan to monitor nesting birds during construction shall be prepared and submitted to the USFWS and CDFG for review and approval. Disturbance of active nests shall be avoided to the extent possible until it is determined that nesting is complete and the young have fledged.
- CCR Mitigation Measure-2: Halt Work if CCR is observed in Work Area. The resident engineer will halt work and immediately contact the approved on-call biologist and the USFWS in the event that a CCR enters the construction zone. The resident engineer will suspend all construction activities in the immediate construction zone until the animal leaves the site voluntarily, or is removed by the biologist to a release site using USFWS-approved transportation techniques.
- CCR Mitigation Measure-3: Care for Injured CCR. Injured CCR will be cared for by a licensed veterinarian or other qualified person such as the on-site biologist. Dead

individuals will be preserved according to standard museum techniques and held in a secure location. The USFWS and the CDFG will be notified within one working day of the discovery of death or injury to CCR.

#### **4.6.4.3. Project Impacts**

The geotechnical investigation and the multi-use pathway construction are anticipated to result in 0.04 ac (0.02 ha) of temporary impacts and 0.41 ac (0.17 ha) of permanent impacts to potentially suitable CCR habitat. Direct impacts to the habitat are anticipated due to the placement of permanent structures associated with the multi-use pathway, installation of a temporary access pathway for the geotechnical investigation, installation of a temporary construction access area for the multi-use pathway, and temporary construction activities (i.e., noise disturbance, ground vibrations, and dust generated). Indirect impacts may occur due to the anticipated increase in pedestrian and bicycle traffic and the potential human-generated trash within the tidal salt marsh area. Additionally, construction of the multi-use pathway may also increase the shading, and subsequent dieback of vegetation (i.e., pickleweed) within this portion of the tidal salt marsh.

Although a majority of the habitat would be restored to pre-project conditions, for the purpose of this assessment, all impacts associated with the geotechnical investigation have been categorized as temporary and potential project impacts associated with construction of the multi-use pathway have been categorized as permanent. With implementation of the previously mentioned mitigation measures and the compensatory mitigation (see below), to be agreed upon with state and federal agencies, the impacts to potentially suitable CCR habitat would be reduced.

#### **4.6.4.4. Compensatory Mitigation**

Impacts to CCR habitat would be mitigated during FESA Section 7 Consultation. To offset impacts to suitable CCR habitat, TAM, in coordination with the USFWS, would create, restore, or set aside in perpetuity suitable CCR habitat, or multi-species habitat, which could offset impacts for other species covered in this Study Area. Alternatively, mitigation credits may be purchased at a USFWS-approved mitigation bank. If no mitigation bank is available, mitigation may be accomplished through support of existing or planned conservation projects.

#### **4.6.5. California Black Rail**

A description of this species is provided in section 3.2.3.5 of this document.

#### 4.6.5.1. Survey Results

No formal surveys for CBR were conducted as part of this project. However, the spring 2009 CCR surveys did not detect any CBR. The southern portion of the Study Area does contain potentially suitable dispersal habitat for CBR. Marsh vegetation in the Study Area is dense and is dominated by pickleweed and cordgrass and the marsh is drained by two tidal channels.

#### 4.6.5.2. Mitigation Measures

To reduce the potential impact of the proposed project on CBR, the following mitigation measures would be implemented:

- General Mitigation Measure–1: Establish Environmentally Sensitive Areas.
- General Mitigation Measure–2: Implement Erosion Control Measures and Storm Water Pollution Prevention Plans.
- General Mitigation Measure–3: Replant/Re-Seed to Stabilize Disturbed Area.
- General Mitigation Measure–4: Replant/Re-Seed Salt Marsh Habitat.
- General Mitigation Measure–5: Provide Environmental Awareness Training.
- General Mitigation Measure–6: Restrictions on Construction Activities.
- General Mitigation Measure–7: USFWS-Approved Biologist.
- General Mitigation Measure–8: Post Construction Compliance Form.
- General Mitigation Measure–9: Wetland Mitigation

In addition to the general mitigation measures listed above, the following specific mitigation measures would be implemented to further reduce impacts on CBR during project construction:

- CBR Mitigation Measure-1: Construction Avoidance Timeline. To the extent feasible, construction activities within permitted work areas shall occur between July 1 and January 31 to reduce potential impacts to CCR breeding/nesting season. If construction must occur during the period from February 1 to June 30, a qualified wildlife biologist shall conduct pre-construction surveys for nesting birds. If an active nest is found, the bird shall be identified to species and the approximate distance from the closest work site to the nest estimated. No additional measures need be implemented if active nests are

more than the 300 ft from the nearest work site. If active nests are closer than 300 ft to the nearest work site and there is the potential for destruction of a nest or substantial disturbance to nesting birds due to construction activities, a plan to monitor nesting birds during construction shall be prepared and submitted to the USFWS and CDFG for review and approval. Disturbance of active nests shall be avoided to the extent possible until it is determined that nesting is complete and the young have fledged.

- CBR Mitigation Measure-2: Halt Work if CBR is Observed in Work Area. The resident engineer will halt work and immediately contact the approved on-call biologist and the USFWS in the event that a CBR enters the construction zone. The resident engineer will suspend all construction activities in the immediate construction zone until the animal leaves the site voluntarily, or is removed by the biologist to a release site using USFWS-approved transportation techniques.
- CBR Mitigation Measure-3: Care for Injured CBR. Injured CBR will be cared for by a licensed veterinarian or other qualified person such as the on-site biologist. Dead individuals will be preserved according to standard museum techniques and held in a secure location. The USFWS and the CDFG will be notified within one working day of the discovery of death or injury to CBR.

#### **4.6.5.3. Project Impacts**

The geotechnical investigation and the multi-use pathway construction are anticipated to result in 0.04 ac (0.02 ha) of temporary impacts and 0.41 ac (0.17 ha) of permanent impacts to potentially suitable CBR habitat. Direct impacts to the tidal salt marsh are anticipated due to the placement of permanent structures associated with the multi-use pathway, installation of a temporary access pathway for the geotechnical investigation, installation of a temporary construction access area for the multi-use pathway, and temporary construction activities (i.e., noise disturbance, ground vibrations, and dust generated). Indirect impacts may occur due to the anticipated increase in pedestrian and bicycle traffic and the potential human-generated trash within the tidal salt marsh area. Additionally, construction of the multi-use pathway may also increase the shading, and subsequent dieback of vegetation within the tidal salt marsh (i.e., pickleweed).

Although a majority of the habitat would be restored to pre-project conditions, for the purpose of this assessment, all impacts associated with the geotechnical investigation have been categorized as temporary and potential project impacts associated with construction of the multi-use pathway have been categorized as permanent. With implementation of the previously mentioned

mitigation measures and the compensatory mitigation measures, to be agreed upon with state and federal agencies, the impacts to potentially suitable CBR habitat would be reduced.

#### **4.6.5.4. Compensatory Mitigation**

Impacts to CBR are anticipated to be the same as the impacts to CCR, which would be mitigated during project-specific consultation. Habitat that would be created, restored, or set aside in perpetuity as suitable CCR habitat would also serve as CBR habitat, which would offset impacts to this species. Alternatively, mitigation credits that would be purchased for an approved mitigation bank or support of planned conservation projects for CCR would also benefit CBR.

#### **4.6.6. Migratory Birds**

A description of this resource is provided in Section 3.2.4.6 of this document.

##### **4.6.6.1. Survey Results**

Trees, riparian areas, man-made bridges, and culverts may provide potential nesting habitat for special-status birds, including raptors, and nesting birds protected under the MBTA. These features are found throughout the Study Area.

##### **4.6.6.2. Mitigation Measures**

To reduce the potential impact of the proposed project on migratory bird nests, the following mitigation measures would be implemented:

- General Mitigation Measure –3: Replant/Re-Seed to Stabilize Disturbed Area.
- General Mitigation Measure –5: Provide Environmental Awareness Training.
- General Mitigation Measure –6: Restrictions on Construction Activities.
- General Mitigation Measure –8: Post Construction Compliance Form.
- General Mitigation Measure–9: Wetland Mitigation

In addition to the general mitigation measures listed above, the following specific mitigation measures would be implemented to further reduce impacts on migratory bird nests during project construction:

- MBTA Mitigation Measure –1: Construction Activities Conducted Outside of Nesting Season. To the extent practicable, shrub and tree trimming and/or removal activities associated with the proposed project will be conducted outside the nesting season (generally between February 1 and August 31).
- MBTA Mitigation Measure –2: Conduct Pre-construction Surveys for Nesting Birds. If shrub and tree removal is scheduled to occur during the nesting season, a qualified wildlife biologist, familiar with the species and habitats in the Study Area, will conduct preconstruction surveys for nesting birds with suitable nesting habitat in the Study Area. The nesting bird surveys should be conducted within one week before initiation of construction activities within those habitats. If no active nests are detected during surveys, construction may proceed. If active nests are detected then MBTA Mitigation Measures – 3 will be implemented.
- MBTA Mitigation Measure –3: Install Exclusion Fencing. A no-disturbance buffer will be established around nests identified during preconstruction surveys. The extent of the no-disturbance buffers will be determined by a wildlife biologist in consultation with CDFG and will depend on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographic or artificial barriers. The purpose of the buffer is to avoid disturbance or destruction of the nest until after the breeding season, or until a wildlife biologist determines that the young have fledged (usually late-June to mid-July). Within this buffer, all non-essential construction activities (e.g., equipment storage, meetings) should be avoided. However, construction activities can proceed if the biological monitor determines that the individual is not likely to abandon the nest during construction.

#### **4.6.6.3. Project Impacts**

Removal of trees, shrubs, and other vegetation may directly affect these species due to the loss of possible nests and any associated eggs and/or nestlings. Additionally, noise and construction activities within the Study Area may preclude or disrupt nesting in these areas throughout the duration of the construction period. There are no anticipated indirect effects. Construction disturbance impacts would be temporary, and implementation of the mitigation measures identified above would minimize impacts to migratory birds. There are no anticipated permanent effects.

#### **4.6.6.4. Compensatory Mitigation**

The proposed project would not result in a substantial impact to migratory birds and no compensatory mitigation beyond implementing the mitigation measures is proposed.

#### **4.6.7. Salt Marsh Harvest Mouse**

A description of this species is provided in section 3.2.4.7 of this document.

##### **4.6.7.1. Survey Results**

No formal surveys have been conducted as part of this project. The southern portion of the project area does contain potential suitable habitat due to the presence of pickleweed in the tidal salt marsh along the northern bank of Corte Madera Creek. Despite the presence of pickleweed, the habitat is only marginally suitable because of the limited area of upland refugia and the extent of habitat fragmentation. According to CNDDDB, historical occurrences of this species included the marsh adjacent to the Larkspur Ferry Terminal approximately 1,600 feet east of the Study Area and the Corte Madera Ecological Preserve approximately 3,300 feet southeast of the Study Area (across Corte Madera Creek). However, surveys conducted in the 1970s and 1980s did not report any occurrences.

##### **4.6.7.2. Mitigation Measures**

To reduce the potential impact of the proposed project on SMHM, the following mitigation measures would be implemented:

- General Mitigation Measure–1: Establish Environmentally Sensitive Areas.
- General Mitigation Measure–2: Implement Erosion Control Measures and Storm Water Pollution Prevention Plans.
- General Mitigation Measure–3: Replant/Re-Seed to Stabilize Disturbed Area.
- General Mitigation Measure–4: Replant/Re-Seed Salt Marsh Habitat.
- General Mitigation Measure–5: Provide Environmental Awareness Training.
- General Mitigation Measure–6: Restrictions on Construction Activities.

- General Mitigation Measure—7: USFWS-Approved Biologist.
- General Mitigation Measure—8: Post Construction Compliance Form.
- General Mitigation Measure—9: Wetland Mitigation

In addition to the general mitigation measures listed above, the following specific mitigation measures would be implemented to further reduce impacts on SMHM during project construction:

- SMHM Mitigation Measure-1: Construction Avoidance Timeline. To the extent feasible, construction activities within permitted work areas shall occur between December 1 and February 28 to reduce potential impacts to SMHM breeding/nesting season. If construction must occur during the period from March 1 to November 30, a qualified wildlife biologist shall conduct pre-construction surveys for SMHM.
- SMHM Mitigation Measure-2: Halt Work if SMHM is Observed in Work Area. The resident engineer will halt work and immediately contact the approved on-call biologist and the USFWS in the event that a SMHM enters the construction zone. The resident engineer will suspend all construction activities in the immediate construction zone until the animal leaves the site voluntarily, or is removed by the biologist to a release site using USFWS-approved transportation techniques.
- SMHM Mitigation Measure-3: Care for Injured SMHM. Injured SMHM will be cared for by a licensed veterinarian or other qualified person such as the on-site biologist. Dead individuals will be preserved according to standard museum techniques and held in a secure location. The USFWS and the CDFG will be notified within one working day of the discovery of death or injury to SMHM.
- SMHM Mitigation Measure-4: Install an Exclusion Fence. A temporary exclusionary fence will be installed to prevent SMHM from entering the permitted work area within the salt marsh. The fence will be maintained and kept in proper working condition for the duration of the construction activities that occur within the salt marsh.

#### **4.6.7.3. Project Impacts**

The geotechnical investigation and the multi-use pathway construction are anticipated to result in 0.04 ac (0.02 ha) of temporary impacts and 0.41 ac (0.17 ha) of permanent impacts to potentially suitable SMHM habitat. Direct impacts to the tidal salt marsh are anticipated due to the

placement of permanent structures associated with the multi-use pathway, installation of a temporary access pathway for the geotechnical investigation, installation of a temporary construction access area for the multi-use pathway, and temporary construction activities (i.e., noise disturbance, ground vibrations, and dust generated). Indirect impacts may occur due to the anticipated increase in pedestrian and bicycle traffic and the potential human-generated trash within the tidal salt marsh area. Additionally, construction of the multi-use pathway may also increase the shading, and subsequent dieback of vegetation (i.e., pickleweed) within the tidal salt marsh.

Although a majority of the habitat would be restored to pre-project conditions, for the purpose of this assessment, all impacts associated with the geotechnical investigation have been categorized as temporary and potential project impacts associated with construction of the multi-use pathway have been categorized as permanent. With implementation of the previously mentioned mitigation measures and the compensatory mitigation measures, to be agreed upon with state and federal agencies, the impacts to potentially suitable SMHM habitat would be reduced.

#### **4.6.7.4. Compensatory Mitigation**

Impacts to SMHM habitat would be mitigated during project-specific Section 7 Consultation. Because this species shares similar habitat with the CCR (and CBR), the compensatory mitigation for these species would also include the SMHM. Therefore, TAM, in coordination with the USFWS, would create, restore, or set aside in perpetuity suitable SMHM habitat, or multi-species habitat, which could offset impacts for other species covered in this Study Area. Alternatively, mitigation credits may be purchased at a USFWS-approved mitigation bank.

## Chapter 5. Permits and Technical Studies for Special Laws or Conditions

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This report evaluates the natural resources in the Study Area in accordance with the provisions of city, county, state, and federal environmental statutes and regulations including:

- California Endangered Species Act
- California Environmental Quality Act
- California Fish and Game Code (Sections 1600 et seq. and 2080)
- California Native Plant Protection Act
- California Porter-Cologne Water Quality Control Act of 2006 (Section 401)
- Clean Water Act (Section 404)
- Executive Order 11990: Protection of Wetlands
- Executive Order 13112 of February 3, 1999: Invasive Species
- Federal Endangered Species Act of 1973, as amended
- Local tree ordinances
- Magnuson-Stevens Fishery Conservation and Management Act
- Migratory Bird Treaty Act

The applicant would be required to obtain and comply with regulatory permits including:

- Section 7 incidental take permit from the USFWS
- Section 1602 Lake and Streambed Alteration Agreement from the CDFG
- Section 2081 incidental take permit from CDFG
- 404 Permit from the USACE
- 401 Water Quality Certification from the RWQCB

- Marin County creek permit

CDFG does not issue take permits for fully protected species and there are no provisions in the CDFG Code for mitigating impacts to fully protected species. Compliance with the MBTA would include pre-construction nesting surveys just prior to the nesting season to identify and remove nearby bird nests, or to prevent nesting, as necessary, to minimize impacts to migratory birds.

The following sections provide detailed descriptions of regulatory requirements that apply to the proposed project.

### **5.1. Federal Endangered Species Act Consultation Summary**

As described in Chapter 4, federally-listed species that could be impacted by the project include TWG, CCCS, Coho, CCR, and SMHM. Impacts to these species would be avoided and minimized as much as feasible. It is anticipated that the proposed project may affect and is likely to adversely affect CCR and SMHM and the proposed project may affect but is not likely to adversely affect TWG, CCCS, CCCS critical habitat, Coho, and Coho EFH.

Informal consultation with the USFWS was initiated June 10, 2009 during an Interagency Meeting with the USACE. Consultation with NMFS would coincide with the submission of the Final Biological Assessment report to the USFWS.

### **5.2. Federal Fisheries and Essential Fish Habitat Consultation Summary**

As described in Chapter 4, EFH for Coho does occur in Corte Madera Creek in the Study Area. Jacobs coordinated with NMFS on February 10 and 17, 2009 to solicit guidance regarding potential impacts to designated critical habitat for CCCS and EFH for Coho as well as the consultation process. The proposed project may adversely affect Coho EFH and may affect, but is not likely to adversely affect CCCS and Coho critical habitat.

### **5.3. California Endangered Species Act Consultation Summary**

The CESA generally parallels the main provisions of FESA, but unlike its federal counterpart, CESA applies the take prohibitions to species proposed for listing (called “candidates” by the state). Section 2080 of the CDFG Code prohibits the taking, possession, purchase, sale, and

import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”. CESA allows for take incidental to otherwise lawful development projects. State lead agencies are required to consult with CDFG to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered or threatened species, or result in destruction or adverse modification of essential habitat.

As described in Chapter 4, state-listed species that could be affected by the project include CCR, CBR, and SMHM. Impacts to these species would be avoided and minimized as described in Chapter 4. A permit or agreements under the CESA may be required for the project. However, no consultation with CDFG has been conducted as of February 2010.

### **5.3.1. California Fully Protected Species**

The State of California first began to designate wildlife species as “Fully Protected” prior to the creation of CESA and FESA. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction. The list included fish, mammals, amphibians, reptiles, and birds. Many fully protected species have since been listed as threatened or endangered under CESA and/or FESA. However, many federal- and state-listed threatened and endangered species are not designated as fully protected. The regulations that implement the Fully Protected Species Statute (Fish and Game Code Section 4700) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFG prohibits any state agency from issuing incidental take permits for fully protected species, except for necessary scientific research. The CCR and SMHM are all fully-protected species that could potentially occur in the vicinity of the project. Mitigation measures described in Chapter 4 would avoid take of these species.

### **5.3.2. California Native Plant Protection Act**

The Native Plant Protection Act (NPPA) of 1977 (Fish and Game Code Sections 1900-1913) was created with the intent to “preserve, protect and enhance rare and endangered plants in this State.” The NPPA is administered by CDFG. The Fish and Game Commission has the authority to designate native plants as “endangered” or “rare” and to protect endangered and rare plants from take. CESA provided further protection for rare and endangered plant species, but the NPPA remains part of the Fish and Game Code. There are no NPPA protected plants found in the Study Area.

## 5.4. Wetlands and “Other” Waters Coordination Summary

The purpose of the CWA is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Section 404 of the CWA prohibits the discharge of dredged or fill material into “waters of the United States” without a permit from the USACE. The definition of WUS includes rivers, streams, estuaries, ponds, lakes, playas, and wetlands. Wetlands are defined as those areas “that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3 7b). The USEPA also has authority over wetlands and may override a USACE permit.

Under state law, areas that are delineated as wetlands but that are not considered under the jurisdiction of the USACE retain their jurisdiction as waters of the state for the RWQCB Porter-Cologne Water Quality Control Act (See Section 5.3.1 below). All wetlands identified in the Study Area were considered to be under the jurisdiction of the USACE.

To the fullest extent practicable, unnecessary impacts to wetlands and “other” waters would be avoided. However, some impacts would be unavoidable in order to construct the proposed project. Mitigation is proposed for the permanent loss of wetlands and “other” WUS, this would be finalized in discussions with USACE and RWQCB. Temporary disturbance would be mitigated through on-site restoration.

This project would require that the applicant obtain permit from the USACE prior to construction of the project. The USACE Permit would require mitigation for impacts to WUS to offset impacts to WUS associated with the proposed project. Habitat would be created, restored, or set aside in perpetuity suitable in a ratio to be determined. Alternately, mitigation credits may be purchased through an approved mitigation bank, if available. If no mitigation bank is available, mitigation may be accomplished through support of existing or planned conservation projects. Mitigation ratios would be determined through coordination with state and federal agencies.

The applicant would prepare a Mitigation, Monitoring and Reporting Plan (MMRP) for the proposed project. Development of the MMRP would be a requirement of the regulatory permits and would include a description of the proposed off-site and on-site mitigation. It may include the following:

- A description of conceptual mitigation design and implementation
- Planting and seeding palettes and methods of revegetation efforts

- Browse protection and irrigation (if necessary)
- Maintenance of plantings for all impacted wetland and revegetation areas
- Maintenance and monitoring program related to the mitigation and revegetation effort
- Performance standards that include all agency implementation and reporting requirements

The MMRP would be submitted to the resource agencies for approval as part of 1602, 401, and/or 404 permit applications.

#### **5.4.1. Porter-Cologne Water Quality Control Act**

The Porter-Cologne Water Quality Control Act (California Water Code, Section 13020) is implemented by the RWQCB. Regional agencies of the RWQCB are responsible for regional enforcement of water quality laws and coordination of water quality control activities. The regional board office with jurisdiction over the portion of Marin County in which the proposed project occurs is Region 2, located in Oakland, California.

Section 13263 of this act authorizes the RWQCB to regulate discharges of waste and fill material to waters of the State, including “isolated” waters and wetlands that may not be jurisdictional under the USACE, through the issuance of waste discharge requirements. If USACE authorizes the placement of fill in WUS under a nationwide or an individual permit, then the applicant is required to obtain a Section 401 Water Quality Certification, or a waiver, from the RWQCB.

#### **5.4.2. California Streambed Alteration Notification/Agreement**

Sections 1601 through 1606 of the California Fish and Game Code require that a streambed alteration application be submitted to the CDFG for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake.” The CDFG reviews the proposed actions and, if necessary, provides the applicant with proposed measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFG and the applicant is the Streambed Alteration Agreement. Often, projects that require a Streambed Alteration Agreement also require a permit from the USACE under Section 404 of the Clean Water Act. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

Trees found along creeks or streams (or possibly other water features such as ditches) are considered part of the riparian canopy. Project improvements within the bed and bank of such features, encompassing and including the edge of the riparian canopy, would be regulated under the CDFG Code. A 1602 Streambed Alteration Agreement notifying the CDFG of the proposed work in these areas would be required. Additionally, CDFG, as a state trustee agency, would require mitigation for the loss of native habitat and likely also for the loss of landscaped vegetation that is habitat for native wildlife species.

## **5.5. Executive Order 13112 of February 3, 1999: Invasive Species**

- Executive Order 13112 was established on February 3, 1999 to combat the spread of invasive vegetation. The Federal Highway Administration (California Division) established November 15, 1999, as the date after which no final NEPA clearance would be given to a project unless it provided appropriate analysis of the action to cause or promote the introduction or spread of invasive species. If the potential to spread or promote invasive species exists, then the proposed project must implement all feasible and prudent measures to minimize this impact. The potential impact is minimized through implementation of the Noxious Weeds Mitigation Measures – 1 (Section 4.4.4.2)

Cal-IPC maintains an inventory and ranking system for noxious weeds that meet the above criteria. Similarly, the California Department of Food and Agriculture (CDFA), maintains a list of target invasive species that pose high threats of invasion. The CDFA lists weeds and assigns ratings to each of the species on its list. These ratings reflect CDFA's view of the statewide importance of the pest, the likelihood that eradication or control efforts would be successful, and the present distribution of the pest in the state. These ratings are guidelines that indicate the most appropriate action to take against an invasive plant species under general circumstances. Rankings and definitions, as described by Cal-IPC and the CDFA, are outlined in the Table 5-1.

Invasive species include species that are non-native to California and were introduced after European settlement as a direct result of human activity. Non-native invasive plant species are typically distinguished from common weeds by the threats they pose to wildland habitats. Invasive species are defined by the Cal-IPC as species which:

- Are not native to California, yet can spread into wildland ecosystems; and
- Displace native species, hybridize with native species, alter biotic communities, or alter ecosystem processes (e.g., hydrology, fire regimes, soil chemistry).

Invasive plant species are present within the Study Area and a list of these plants along with their Cal-IPC and CDFA designations is provided in Table 5-2.

**Table 5-1. California Invasive Plant Council’s and California Department of Food and Agriculture’s Noxious Weed Rankings and Definitions**

Rank	Definition
<i>California Invasive Plant Council’s Noxious Weed Rankings and Definitions</i>	
<b>High</b>	These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically, both among and within ecosystems.
<b>Moderate</b>	These species have substantial and apparent, but generally not severe, ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent on ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
<b>Limited</b>	These species are invasive but their ecological impacts are minor on a statewide level or there is not enough information to justify a higher score. Their reproductive biology and other invasiveness attributes result in low to moderate rates of invasion. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.
<b>Alert</b>	This is an additional designation for some species in either the high or medium category, but whose current ecological amplitude and distribution are limited. The designation alerts managers to species that are capable of rapidly invading unexploited ecosystems, based on initial, localized observations, and on observed ecological behavior in similar ecosystems elsewhere.
<b>Evaluated but not listed</b>	In general, this designation is for species for which information is currently inadequate to respond with certainty to the minimum number of criteria questions or for which the sum effects of ecological impacts, invasiveness, and ecological amplitude and distribution fall below the threshold for listing (i.e., the overall rank falls below Low). Many such species are widespread but are not known to have substantial ecological impacts (though such evidence may appear in the future) (CAL-EPPC 2003).
<i>California Department of Food and Agriculture’s Noxious Weed Rankings and Definitions</i>	
<b>A</b>	An organism of known economic importance subject to state enforced action involving: eradication, quarantine, containment, rejection, or other holding action.
<b>B</b>	An organism of known economic importance subject to eradication, containment, control or other holding action at the discretion of the individual county agricultural commissioner or an organism of known economic importance subject to state-endorsed holding action and eradication only when found in a nursery.
<b>C</b>	An organism subject to no state-enforced action outside of nurseries except to retard spread at the discretion of the commissioner or an organism subject to no state-enforced action except to provide for pest cleanliness in nurseries.

**Table 5-2. Common and High-Priority Invasive Plant Species Present within the Study Area**

Scientific Name	Common Name	Cal-IPC	CDFA
<b><i>High Priority Noxious Weeds<sup>1</sup></i></b>			
<i>Centaurea solstitialis</i>	yellow starthistle	High	C
<i>Cortaderia selloana</i>	pampas grass	High	NL
<i>Foeniculum vulgare</i>	wild fennel	High	NL
<i>Genista monspessulana</i>	French broom	High	C
<i>Hedera helix</i>	English ivy	High	NL
<i>Lepidium latifolium</i>	broad-leaf pepper grass	High	B
<b><i>Common Noxious Weeds<sup>2</sup></i></b>			
<i>Avena barbata</i>	slender wild oat	Moderate	NL
<i>Avena fatua</i>	wild oats	Moderate	NL
<i>Brassica nigra</i>	black mustard	Moderate	NL
<i>Bromus diandrus</i>	ripgut brome	Moderate	NL
<i>Carduus pycnocephalus</i>	Italian thistle	Moderate	C
<i>Dipsacus sativus</i>	Fuller's teasel	Moderate	NL
<i>Eucalyptus globulus</i>	Tasmanian blue gum	Moderate	NL
<i>Geranium dissectum</i>	cut-leaf geranium	Moderate	NL
<i>Hordeum marinum</i> ssp.	Mediterranean barley	Moderate	NL
<i>Hordeum murinum</i> ssp. <i>leporinum</i>	hare barley	Moderate	NL
<i>Hypochaeris radicata</i>	rough cat's ear	Moderate	NL
<i>Lolium multiflorum</i>	annual rye grass	Moderate	NL
<i>Mentha pulegium</i>	Pennyroyal	Moderate	NL
<i>Phalaris aquatica</i>	harding grass	Moderate	NL
<i>Vinca major</i>	big periwinkle	Moderate	NL
<i>Brassica rapa</i>	field mustard	Limited	NL
<i>Briza maxima</i>	rattlesnake grass	Limited	NL
<i>Bromus hordeaceus</i>	soft chess	Limited	NL
<i>Phoenix canariensis</i>	Canary Island date palm	Limited	NL
<i>Medicago polymorpha</i>	bur clover	Limited	NL
<i>Picris echioides</i>	bristly ox-tongue	Limited	NL
<i>Plantago lanceolata</i>	narrowleaf plantain	Limited	NL
<i>Rhaphanus sativus</i>	wild radish	Limited	NL
<i>Rumex crispus</i>	curly dock	Limited	NL

Scientific Name	Common Name	Cal-IPC	CDFA
<i>Convolvulus arvensis</i>	bindweed	NR	C
<i>Erodium bothrys</i>	broadleaf filaree	NR	NL
<i>Lactuca serriola</i>	prickly lettuce	NR	NL
<i>Nerium oleander</i>	oleander	NR	NL
<i>Sonchus asper</i>	prickly sowthistle	NR	NL
<sup>1</sup> High priority noxious weeds to be mitigated for <sup>2</sup> Moderate and Limited noxious weeds – common throughout California, no mitigation necessary  NL: Not listed NR: This species is listed, but has not yet been rated.			
Source: Caltrans 2006.			

Exotic and highly invasive species are common throughout wetland and ruderal areas in the Study Area. Such species include perennial pepperweed (*Lepidium latifolium*), French broom (*Genista monspessulana*), sweet fennel (*Foeniculum vulgare*), and pampas grass (*Cortaderia selloana*).

If noxious weeds become established on or near the Study Area, these populations may invade wildlands, potentially degrading existing habitat for special-status plant and animal species. The spread of noxious weeds could result in a reduction or elimination of species diversity or abundance in adjacent areas. Compliance with the proposed mitigation measures would reduce the potential for adverse cumulative impacts of the proposed project relating to the spread of noxious weeds.

## 5.6. California Environmental Quality Act

CEQA requires government agencies to consider the environmental consequences of their actions before approving plans and policies or committing to a course of action on a project. This process is intended to: (1) inform government decision makers and the public about the potential environmental impacts of proposed activities; (2) identify the ways that environmental damage can be avoided or significantly reduced; (3) prevent significant, avoidable environmental damage by requiring changes in projects, either by the adoption of alternatives or imposition of mitigation measures; and (4) disclose to the public why a project was approved if that project would have significant environmental impacts (CEQA Guidelines, Section 15002).

The applicant has incorporated a number of mitigation measures into the proposed project as described in previous sections, pursuant to CEQA to reduce impacts to special- status species, including federally-listed species, wildlife habitat, and natural communities. Measures include

those required to comply with CWA Sections 401 - water quality and stormwater treatment, Section 402 - construction BMPs, and Section 404 - mitigation for impacts to WUS.

## **5.7. Other Regulations**

### **5.7.1. Migratory Bird Treaty Act**

The MBTA (16 USC 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the former Soviet Union and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703, 50 CFR 21, 50 CFR 10). Most actions that result in taking or in permanent or temporary possession of a protected species constitute violations of the MBTA. Examples of permitted actions that do not violate the MBTA include the possession of a hunting license to pursue specific game birds, legitimate research activities, display in zoological gardens, bird-banding, and other similar activities. USFWS is responsible for overseeing compliance with the MBTA.

Migratory birds may nest on the ground, on structures, or in trees, shrubs, or other vegetation within the proposed project Study Area. In accordance with the MBTA, if construction occurs within the nesting season (February 16 to September 30) a survey of active migratory bird nests would be conducted in potentially affected trees and shrubs just prior to the beginning of construction. CDFG would be notified of any occupied bird nests in affected trees prior to any removal of those nests. To prevent nesting in trees, the applicant would remove unoccupied nests during the non-nesting period (October 1 to February 15) during any year of construction.

### **5.7.2. Local Tree Ordinances**

The City of Larkspur has a local tree ordinance that provides guidance for the removal of native trees of a certain size. “Heritage Trees” are defined by the City of Larkspur as 1) A live tree or grove of live trees of historical significance specifically designated by official action of the City Council; or 2). Any live tree which has a trunk with a circumference of 50 inches or more, measured at 24 inches above the natural grade, or at a point 24 inches above the highest grade. The measurement producing the greatest circumference shall be used. In the case of multi-trunk trees, the circumference of each trunk is to be measured in the manner previously described, and the circumferences of each trunk is to be added to ascertain the total circumference of the tree. A permit from the City of Larkspur would be required for the removal of any heritage trees.

The proposed project could potentially impact a total of 47 trees. Permanent impacts to trees would include the removal of up to 17 coast live oak trees. The applicant would consider the suggested ratios when determining mitigation for the loss of trees in the Study Area.

When tree removal cannot be avoided, a tree replacement plan would be prepared and implemented. To the greatest extent practicable, all replacement trees would be derived from local seed stock to maintain genetic integrity. Trees would be planted in close proximity to removal sites, if appropriate.

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TAM

Transportation Authority of Marin  
Central Marin Ferry Connection  
Larkspur, California  
Phase 1

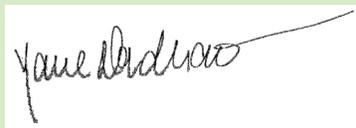
PHASE I ENVIRONMENTAL SITE ASSESSMENT

Version 2, August 2009

TAM Project No.: C-FY05/06-007

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SUBMITTED BY:



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# **EXECUTIVE SUMMARY**

## **PHASE I ENVIRONMENTAL SITE ASSESSMENT**

### **Central Marin Ferry Connection Project Larkspur, California**

BASELINE Environmental Consulting performed a Phase I Environmental Site Assessment (ESA) for the Central Marin Ferry Connection Project (Project) proposed by the Transportation Authority of Marin in Marin County, California (PM 14.7 to PM 15.3). The purpose of this investigation was to determine whether recognized environmental conditions (RECs) are present at the Project site, adjoining improvements, and/or adjoining properties as defined in the American Society of Testing and Materials (ASTM) Method E1527-05, "Standard Practice for Environmental Site Assessments: Phase I Environmental Assessment Process."

The scope of work for this ESA included: a review of historical land use information, including historical topographic maps and aerial photographs; a site reconnaissance; and a review of regulatory agency lists and databases. All work was conducted in accordance with ASTM Method E1527-05.

### **FINDINGS**

- The Project site was developed for railroad services, parking, and roads as early as 1897. Pesticides, herbicides, creosote, and metals may be present in shallow soils associated with historical railroad operations. Petroleum hydrocarbons and associated compounds may be present in shallow soils associated with parking lot operations.
- No stressed or damaged vegetation, stained or discolored surfaces, odors, or other evidence that might be indicative of a hazardous materials release was identified at the Project site during the site reconnaissance. Railroad ties and boardwalk planks and beams at the Project site may be chemically treated with creosote and metals.
- Two hazardous materials release sites within one-quarter mile of the Project site appeared on federal, state, and local agency lists and databases. The two hazardous materials release sites have been closed, indicating that regulatory agency oversight of remedial and/or monitoring activities have been completed.
- Aerially-deposited lead (ADL) from vehicle exhausts may be present in shallow soils at the Project site within approximately 30 feet of Sir Francis Drake Boulevard and the northbound on- and off-ramps for U.S. 101.
- A geological map of the Project area does not indicate any naturally-occurring asbestos rock (ultramafic) at the Project site.

## CONCLUSIONS

This assessment has revealed the following RECs in connection with the Project.

- Potential pesticides, herbicides, creosote, and metals in shallow soils adjacent to railroad tracks.
- Potential petroleum hydrocarbons and associated compounds in shallow soils associated with the use of an unpaved parking lot.
- Potential creosote and metals in abandoned railroad ties and existing boardwalk beams and planks.
- Potential ADL in shallow soils within approximately 30 feet of Sir Francis Drake Boulevard and the northbound on- and off- ramps for U.S. 101.

## RECOMMENDATIONS

1. A limited subsurface investigation should be performed to investigate potential hazardous materials issues identified during this ESA. Samples should be collected in the following areas proposed to be disturbed by construction activities for the Project:
  - Representative shallow soil samples should be collected and analyzed for total copper, arsenic, and mercury (metals commonly contained in inorganic pesticides and herbicides), organochlorine pesticides, chlorinated herbicides, and semi-volatile organic compounds adjacent to abandoned railroad tracks north of Sir Francis Drake Boulevard.
  - Representative shallow soil samples should be collected and analyzed for polynuclear aromatic hydrocarbons, volatile organic compounds, and total petroleum hydrocarbons as gasoline, diesel, and motor oil in the unpaved parking lot north of Sir Francis Drake Boulevard.
  - Representative soil samples should be collected and analyzed for total lead and soluble lead (using Waste Extraction Test procedure) at the Project site within 30 feet of Sir Francis Drake Boulevard and the northbound on- and off-ramps for U.S. 101. Analytical results should be screened against hazardous waste thresholds and applicable regulatory agency's risk-based screening levels for commercial workers and construction workers
2. Removal of railroad ties and/or portions of the boardwalk should be performed in accordance with applicable federal, state, and local regulations and disposed of at a solid waste landfill certified by the State Water Resources Control Board.

# **PHASE I ENVIRONMENTAL SITE ASSESSMENT CENTRAL MARIN FERRY CONNECTION PROJECT Larkspur, California**

## **1. INTRODUCTION**

This report describes the activities and presents the findings and conclusions of a Phase I Environmental Site Assessment (ESA) for the Central Marin Ferry Connection Project (Project) in Larkspur, California (Figure 1). The Transportation Authority of Marin (TAM) is proposing to construct a new multi-use pathway intended to further promote non-motorized commute alternatives and enhanced recreational travel within the City of Larkspur in Marin County, California. BASELINE Environmental Consulting (BASELINE) performed this Phase I ESA at the request of the TAM's consultant, Jacobs Carter Burgess, in support of CEQA environmental review for the Project.

TAM plans to construct the project in two phases. Phase I of the proposed project, and the scope of this proposed project, would construct a multi-use pathway adjacent to the east side of U.S. Highway 101 (U.S. 101) from post mile (PM) 14.7 to PM 15.3 that would include an overcrossing above East Sir Francis Drake Boulevard (SFDB) and connect to the existing multi-use pathway located south of SFDB (Figure 2). Other elements of the proposed Project include:

- Construction of a new multi-use pathway overcrossing structure and approach ramps at East SFDB.
- Construction of a new access ramp from the sidewalk on the north side of East SFDB to the new overcrossing.
- Construction of an approach ramp for the multi-use path south of East SFDB with viewing areas above the salt marsh area and Corte Madera Creek.
- Construction of a new access ramp that conforms to the existing multi-use paths and repaving of the existing multi-use pathway south of East SFDB from the Highway 101 northbound off ramp structure to the Larkspur Ferry Terminal entrance.
- Construction of retaining walls at various locations along the multi-use path.
- Construction of new sidewalks, curbs, and gutters along East SFDB.
- Installation of signage, striping, lighting, screening, handrails, fencing, landscaping, truncated domes and/or bollards.
- Construction of stormwater swales and detention basins.

- Removal or retrofitting of all or a portion of the existing railroad trestle.
- Relocation and protection of existing utilities.
- Construction of temporary access areas within the salt marsh and Corte Madera Creek

The purpose of this investigation was to determine whether recognized environmental conditions<sup>1</sup> (RECs) are present at the Project site, adjoining improvements, and/or adjoining properties as defined in the American Society of Testing and Materials (ASTM) Method E1527-05, *Standard Practice for Environmental Site Assessments: Phase I Environmental Assessment Process*. The scope of work for this ESA included: a review of historical land use information, including historical topographic maps and aerial photographs; a site reconnaissance; and a review of regulatory agency lists and databases.

Identification and/or sampling of asbestos and lead was not included in this assessment, but are discussed in Section 6, below.

## **2. SITE DESCRIPTION**

### **Geology and Hydrogeology**

The Project site is located within the Corte Madera Creek watershed. Corte Madera Creek is located at the southern terminus of the Project site and flows approximately one-half mile east of the Project site into the Bay-front marshlands and San Francisco Bay (USGS 1993). Southern Heights Ridge is located immediately north of the Project site and generally slopes to the southeast toward Corte Madera Creek and San Francisco Bay. The northern terminus of the Project site has an elevation of approximately 80 feet National Geodetic Vertical Datum 1929 (NGVD29) and gradually slopes south down to an elevation of approximately 10 feet NGVD29 at SFDB. Groundwater flow likely follows the local topography and flows towards Corte Madera Creek and San Francisco Bay.

The Project site north of SFDB is generally underlain by Franciscan Complex Mélange (USGS 2000) and is located between the limits of the 100-year and 500-year flood hazard zone (Environmental Data Resources 2008a) as defined by Federal Emergency Management Agency (FEMA). The Project site between SFDB and Corte Madera Creek is generally underlain by Quaternary marsh deposits, which, in places, is overlain by imported fill (USGS 2000) and is located in the 100-year flood hazard zone (Environmental Data Resources 2008b) as defined by FEMA.

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<sup>1</sup> RECs are defined in ASTM E1527-05 as “the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property.” According to ASTM E1527-05, the term “REC” is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental authorities.

### 3. HISTORICAL LAND USES

Historical land uses in and near the Project site were determined by reviewing topographic maps from 1897 through 1993 and aerial photographs from 1946 through 2005. Sanborn Fire Insurance Maps, which generally include more detailed information regarding historical land uses, were not available for the Project site vicinity. The historical land use resources reviewed for this Phase I are included in Appendix A. Land uses identified in the review of historical records are summarized in Table 1.

In 1897, the date of the first available resource, the Project site and surrounding areas were primarily undeveloped marshlands and grass-covered terrain with scattered trees. The Northwestern Pacific Railroad operated at the Project site as early as 1897. Pesticides and herbicides have historically been applied along railroads. Some classes of pesticides and herbicides commonly used since the 1940s, such as organochlorine pesticides, chlorinated herbicides, and inorganic compounds, can leave residues that persist for many decades. Chemical residues from these pesticides and/or herbicides may be present in the shallow soils along the railroad at the Project site. Other contaminants of potential concern associated with historic railroad operations at the Project site include creosote and metals from chemically-treated railroad ties. Two small structures were located adjacent to the railroad at the Project site and an unpaved road was located along the general alignment of SFDB.

By 1946 U.S. 101 had been constructed adjacent to and west of the Project site. A paved road had been developed along the general alignment of SFDB. The two structures noted in the 1897 topographic map at the Project site had been removed. A spur track extended east of the Northwestern Pacific Railroad from the Project site towards a quarry and associated buildings. Approximately four small buildings and docks were located at the Project site immediately north of Corte Madera Creek.

Aerial photographs indicated that commercial and light industrial development east of the Project site was constructed between 1952 and 1965. Topographic maps and aerial photographs indicated that a sewage disposal facility and a brick kiln were located east of the Project site. Residential development had begun west of the Project site and north of Corte Madera Creek. By 1965 U.S. 101 had been widened from a two-lane highway to a six-lane highway. The four structures along the north shoreline of Corte Madera Creek at the Project site were removed.

Commercial and residential development increased between 1965 and 1980. The Northwestern Pacific Railroad operations were inactive by 1980. Quarry operations ceased prior to 1993 and the quarry area was redeveloped into residential apartment complexes. An unpaved parking lot was built at the Project site north of SFDB by 1993. Lubricating oils, gasoline, diesel, and motor oil from vehicles may have affected shallow surface soils in and adjacent to the unpaved parking lot.

Hazardous material releases associated with historical commercial and industrial land uses in and adjacent to the Project site may have impacted soils and groundwater quality beneath the Project site. However, regulatory agency oversight of hazardous materials use, storage, and release sites in the Project site vicinity has reduced the potential for unknown contaminant sources to impact

soils and groundwater beneath the Project site. Reviews of regulatory lists and databases are discussed in Section 5, below.

#### **4. CURRENT LAND USES AND SITE RECONNAISSANCE**

Current land uses in the Project vicinity were determined by a site reconnaissance performed by BASELINE on May 22, 2008 and a review of liquid pipeline information from the United States Department of Transportation Office of Pipeline Safety (USDOT OPS). No petroleum pipelines were identified in the vicinity of the Project site (USDOT OPS 2008). The site reconnaissance was conducted to identify evidence of past or current use, storage, disposal, or releases of hazardous materials at the Project site and on adjoining properties. Evidence of hazardous materials releases could include apparent odors, stained or discolored surfaces, and stressed or damaged vegetation.

Portions of the abandoned Northwestern Pacific Railroad were identified at the Project site. Depots where hazardous materials were potentially loaded or unloaded were not identified along the railroad tracks near the Project site. A collapsed railroad tunnel was observed at the northern terminus of the Project site (Figure 3A). Grass-covered terrain and scattered bushes occupied the Project site near the collapsed railroad tunnel. An unpaved parking lot approximately one-quarter mile long was located immediately north of SFDB at the Project site (Figure 3B). Commercial properties were located east of the Project site and U.S. 101 was located west of the Project site. Evidence of hazardous materials storage or releases was not identified at the Project site north of SFDB.

Marshlands and a boardwalk were located at the Project site between Corte Madera Creek and SFDB near the proposed overcrossing (Figure 4). Wood from the boardwalk could potentially be chemically treated with creosote and metals. Evidence of hazardous materials storage or releases was not identified at the Project site between Corte Madera Creek and SFDB.

#### **5. REGULATORY AGENCY OVERSIGHT OF HAZARDOUS MATERIALS**

BASELINE contracted with Environmental Data Resources, Inc. (EDR), an environmental resource service, to conduct a search of federal, state, and local regulatory agency lists and databases pertaining to past and present hazardous material uses and releases on properties at or near the Project site. The database search was conducted on May 6, 2008. Sites associated with hazardous materials within one-quarter mile of the Project site were reviewed in detail to evaluate if they may affect subsurface conditions beneath the Project site. The one-quarter mile radius was selected based on the density of sites associated with hazardous materials in proximity to the Project site.

Information about sites associated with hazardous materials beyond the one-quarter mile radius is available in the complete environmental database report included in Appendix B. Descriptions of regulatory agency lists and databases reviewed for hazardous material sites within one-quarter mile of the Project are summarized in Table 2. All the sites associated with hazardous materials that were identified by the EDR report within one-quarter mile of the Project site are summarized in Table 3 and the approximate locations are shown on Figure 5.

## **Sites Associated with Use, Storage, Generation, and Disposal of Hazardous Materials**

A total of five sites were listed in regulatory databases associated with the use, storage, generation, and disposal of hazardous materials within one-quarter mile of the Project site (Sites 1 through 5 in Table 3). Three of these sites were listed in either the Resource Conservation and Recovery Act (RCRA) database or the State's Hazardous Waste Information System (HAZNET) (Sites 1, 2, and 3 in Table 3), indicating that they were listed as a generator of at least one hazardous waste manifest collected by the U.S. Environmental Protection Agency (U.S. EPA) or California Environmental Protection Agency. One site was registered for USTs (Site 5 in Table 3). One site was registered for aboveground storage tanks (Site 3 in Table 3). Maxwell the Cleaner (Site 2 in Table 3) is a dry cleaning facility registered with the U.S. EPA for the potential use of chlorinated solvents. The Golden Gate Ferry (Site 3 in Table 3) was permitted by the San Francisco Bay Regional Water Quality Control Board (Water Board) for wastewater discharges.

## **Sites Associated with a Hazardous Materials Release**

The EDR report identified two hazardous materials release sites on the federal Emergency Response Notification System (ERNS) within one-quarter mile of the Project (Sites 3 and 4 in Table 3). Approximately 25 gallons or less of waste oil was released at each of the sites. Regulatory agency oversight of the waste oil release sites were closed, indicating that remediation had either been completed or was not necessary.

## **Orphan Sites**

The EDR report listed 31 sites with known hazardous materials use and releases with poor or inaccurate address information in an "orphan summary". The Larkspur Ferry Landing and 101 Sir Frances Drake Boulevard/Larkspur Ferry Terminal were listed as orphan sites and are discussed above. Based on available address information, the remaining sites listed in the orphan summary were considered unlikely to affect subsurface conditions at the Project site based on geographical distance from the Project site.

## **6. LEAD AND ASBESTOS ISSUES**

### **Aerially-Deposited Lead**

Lead alkyl compounds were first added to gasoline in the 1920s. Beginning in 1973, the United States Environmental Protection Agency ordered a gradual phase out of lead from gasoline that significantly reduced the prevalence of leaded gasoline by the mid-1980s (DTSC 2004). Soils adjacent to freeways and heavily traveled roads have the potential to be contaminated with aerially-deposited lead (ADL) due to historic automobile exhaust prior to the elimination of lead in gasoline. Lead has commonly been found within 30 feet of the edge of pavement and within the top six inches of soil (DTSC, 2009); however lateral distance and depth of ADL vary from site to site.

Historical maps and aerial photographs (discussed in Section 3, above) show that SFDB and U.S. 101 were constructed prior to the elimination of lead in gasoline. Therefore, shallow soils at the

Project site within approximately 30 feet of the edge of pavement along SFDB and the northbound on- and off-ramps for U.S. 101 could be contaminated with ADL.

## **Naturally-Occurring Asbestos**

Geologic mapping from the United State Geological Survey does not show any areas of rock likely to contain naturally-occurring asbestos (ultramafic rock) at the Project site or vicinity (California Department of Conservation 2000). Therefore, naturally occurring asbestos would not be expected to be a potential hazard during development of the Project.

## **7. DATA GAPS**

The ASTM Standard Method E1527-05 requires the identification of data gaps, along with actions taken to address these gaps, and an opinion as to whether these gaps are significant. Information sources at intervals greater than a five years between sources from the present to 1940 or the first developed land use, whichever is earlier, can be considered a data gap.

The first land use data gap is from the date the Project site and vicinity were developed to the first topographic map of development at the Project site in 1897. Five additional land use gaps have the following time periods: 1897 to 1946, 1952 to 1965, 1965 to 1980, 1982 to 1993, and 1998 to 2005. The land use data gaps are not considered significant because historical land use resources indicate that the Project site has historically been used for railroads, parking, and roads, and the land surrounding the Project site has historically been used for residential, commercial, and light industrial development.

## **8. DEVIATIONS**

The Project site was determined by the footprint of proposed construction activities and is not a single contiguous commercial parcel, as assumed in ASTM E1527-05. An ASTM User Questionnaire was not completed because it does not apply to the Project. A person with good knowledge of the uses and physical characteristics of the Project site could not be identified to interview regarding potential uses and conditions associated with hazardous materials at the Project site.

## **9. FINDINGS**

- The Project site was developed for railroad services, parking, and roads as early as 1897. Pesticides, herbicides, creosote, and metals may be present in shallow soils associated with historical railroad operations. Petroleum hydrocarbons and associated compounds may be present in shallow soils associated with parking lot operations.
- No stressed or damaged vegetation, stained or discolored surfaces, odors, or other evidence that might be indicative of a hazardous materials release was identified at the Project site during the site reconnaissance. Railroad ties and boardwalks planks and beams at the Project site may be chemically treated with creosote and metals.

- Two hazardous materials release sites within one-quarter mile of the Project site appeared on federal, state, and local agency lists and databases. The two hazardous materials release sites have been closed, indicating that regulatory agency oversight of remedial and/or monitoring activities have been completed.
- Aerially-deposited lead from vehicle exhausts may be present in shallow soils at the Project site within approximately 30 feet of SFDB and the northbound on- and off-ramps for U.S. 101.
- A geological map of the Project area does not indicate any naturally-occurring asbestos rock (ultramafic) at the Project site.

## **10. CONCLUSIONS**

We have performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E1527-05 of the Central Marin Ferry Connection Project, located in Larkspur, California. Any exceptions to, or deletions from, this practice are described herein.

### **Recognized Environmental Conditions**

This assessment has revealed the following RECs in connection with the Project.

- Potential pesticides, herbicides, creosote, and metals in shallow soils adjacent to railroad tracks.
- Potential petroleum hydrocarbons and associated compounds in shallow soils associated with the use of an unpaved parking lot.
- Potential creosote and metals in abandoned railroad ties and existing boardwalk beams and planks.
- Potential ADL in shallow soils within approximately 30 feet of SFDB and the northbound on- and off- ramps for U.S. 101.

## **11. RECOMMENDATIONS**

1. A Phase II soil investigation should be performed to investigate potential hazardous materials issues identified during this ESA. Samples should be collected in the following areas proposed to be disturbed by construction activities for the Project:
  - Representative shallow soil samples should be collected and analyzed for total copper, arsenic, and mercury (metals commonly contained in inorganic pesticides and herbicides), organochlorine pesticides, chlorinated herbicides, and semi-volatile organic compounds adjacent to abandoned railroad tracks north of Sir Francis Drake Boulevard.

- Representative shallow soil samples should be collected and analyzed for polynuclear aromatic hydrocarbons, volatile organic compounds, and total petroleum hydrocarbons as gasoline, diesel, and motor oil in the unpaved parking lot north of Sir Francis Drake Boulevard.
  - Representative soil samples should be collected and analyzed for total lead and soluble lead (using Waste Extraction Test procedure) at the Project site within 30 feet of SFDB and the northbound on- and off-ramps for U.S. 101. Analytical results should be screened against hazardous waste thresholds and applicable regulatory agency's risk-based screening levels for commercial workers and construction workers
2. Removal of railroad ties and/or portions of the boardwalk should be performed in accordance with applicable federal, state, and local regulations and disposed of at a solid waste landfill certified by the State Water Resources Control Board.

## **12. LIMITATIONS**

This ESA report is intended to provide an understanding of the current environmental conditions at the Project. BASELINE's interpretations and conclusions regarding this information and presented in this report are based on the expertise and experience of BASELINE in conducting similar assessments and current local, state, and federal regulations and standards.

BASELINE's objective is to perform our work with care, exercising the customary thoroughness and competence of earth science, environmental, and engineering consulting professionals, in accordance with the standard for professional services for a consulting firm at the time these services were provided. It is important to recognize that even the most comprehensive scope of services may fail to detect environmental conditions and potential liability at a particular site. Therefore, BASELINE cannot act as insurers and cannot "certify or underwrite" that a site is free of environmental contamination, and no expressed or implied representation or warranty is included or intended in this report except that the work was performed within the limits prescribed with the customary thoroughness and competence of our profession.

The passage of time, manifestation of latent conditions, or occurrence of future events may require further exploration at the Project site, analysis of the data, and re-evaluation of the findings, observations, conclusions, and recommendations expressed in the report.

The findings, observations, conclusions, and recommendations expressed by BASELINE in this report are limited by the scope of services and should not be considered an opinion concerning the compliance of any past or current owner or operator of the site with any federal, state, or local law or regulation. No warranty or guarantee, whether express or implied, is made with respect to the data reported or findings, observations, conclusions, and recommendations expressed in this report.

### **13. REFERENCES**

California Department of Conservation, Division of Mines and Geology, 2000, A General Location Guide for Ultramafic Rocks in California -- Areas More Likely to Contain Naturally Occurring Asbestos, August.

California Department of Toxic Substances Control (DTSC), 2004, Draft Lead Report, August.

California Department of Toxic Substances Control (DTSC), 2009, Caltrans Statewide Variance for Reuse of Lead-Contaminated Soils, Fact Sheet, April.

Environmental Database Report (EDR), 2008A, Central Marin Ferry Connection Project, Inquiry Number: 2213562.2s, May 6.

Environmental Database Report (EDR), 2008B, Central Marin Ferry Connection Project, Inquiry Number: 2231604.2s, May 30.

United States Department of Transportation Office of Pipeline Safety (USDOT OPS), 2008, National Pipeline Mapping System, accessed 22 May 2008, Website: <https://www.npms.phmsa.dot.gov/searchp/Application.asp>.

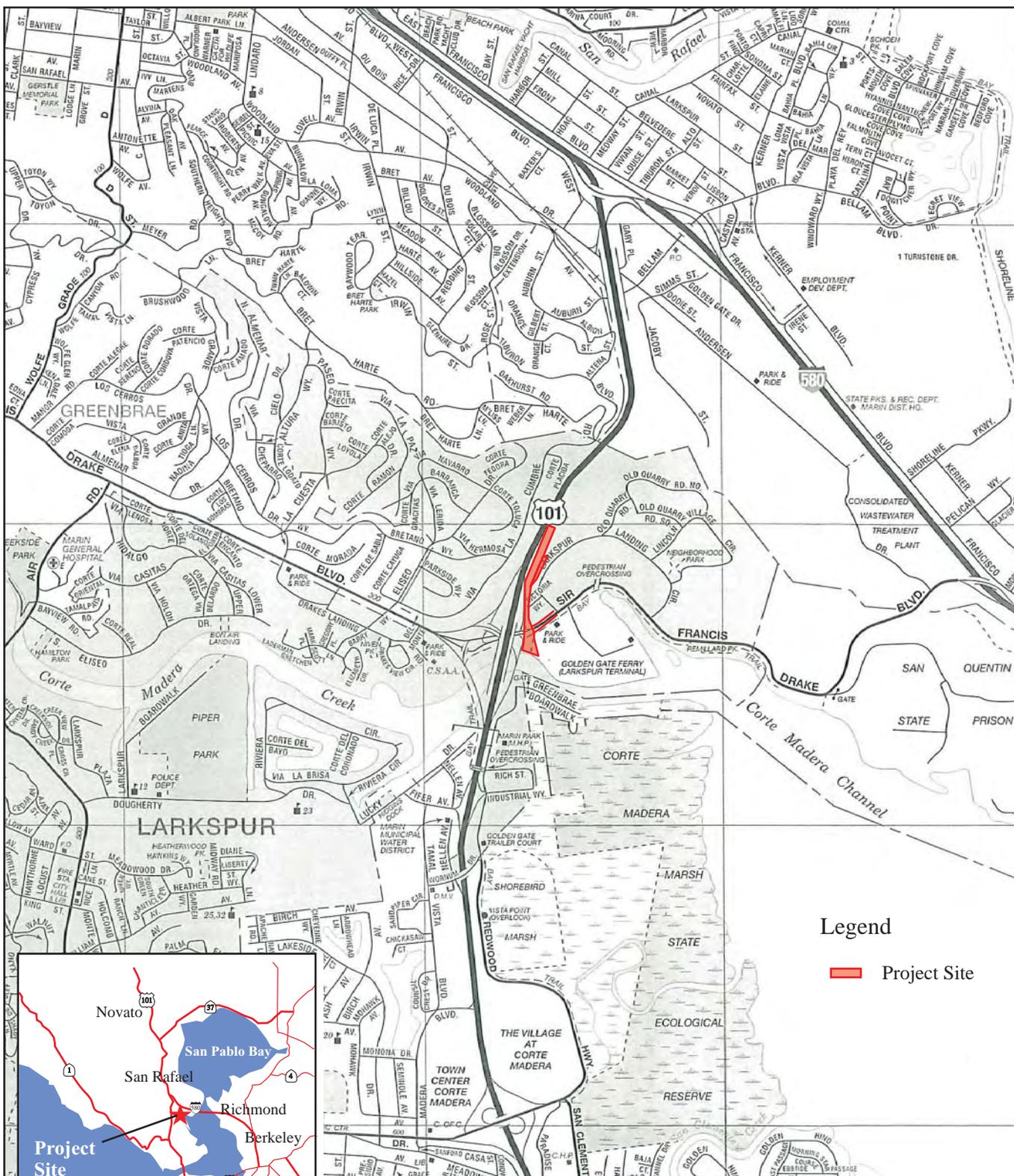
United States Geological Survey (USGS), 1993, San Rafael Quadrangle, 7.5 Minute Series.

United States Geological Survey (USGS), 2000, Geologic Map and Map Database of Parts of Marin, San Francisco, Alameda, Contra Costa, and Sonoma Counties, California.

## **FIGURES**

# REGIONAL LOCATION

# Figure 1



## Central Marin Ferry Connection Project Larkspur, California

Y6322-01.01175.Fig1.cdr 12/31/08



**B**ASELINE **E**

**PROJECT SITE**  
**Central Marin Ferry Connection Project**  
**Larkspur, California**

**Figure 2**

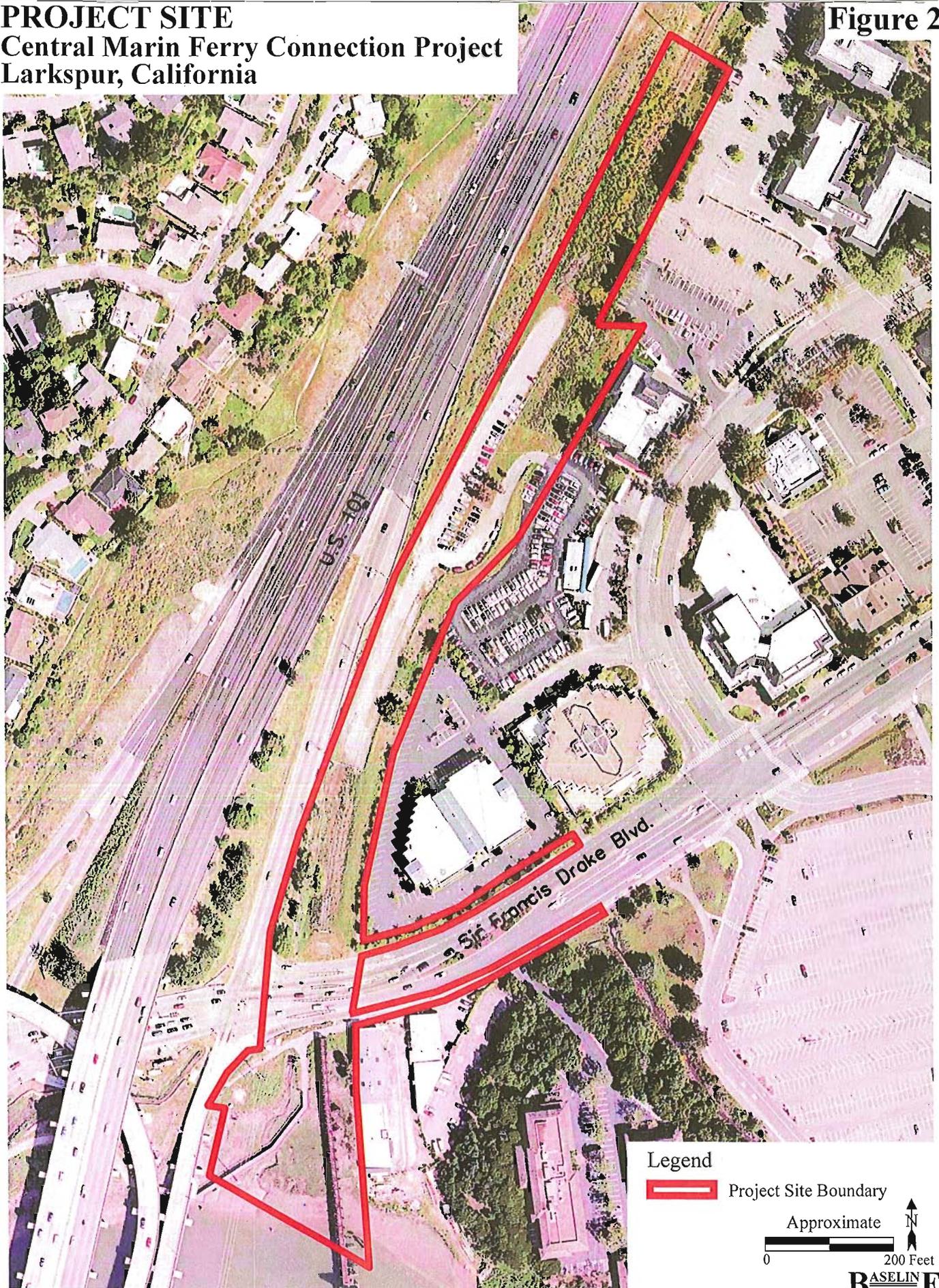




Figure 3A: Collapsed Cal Park tunnel at the north end of the Project alignment.



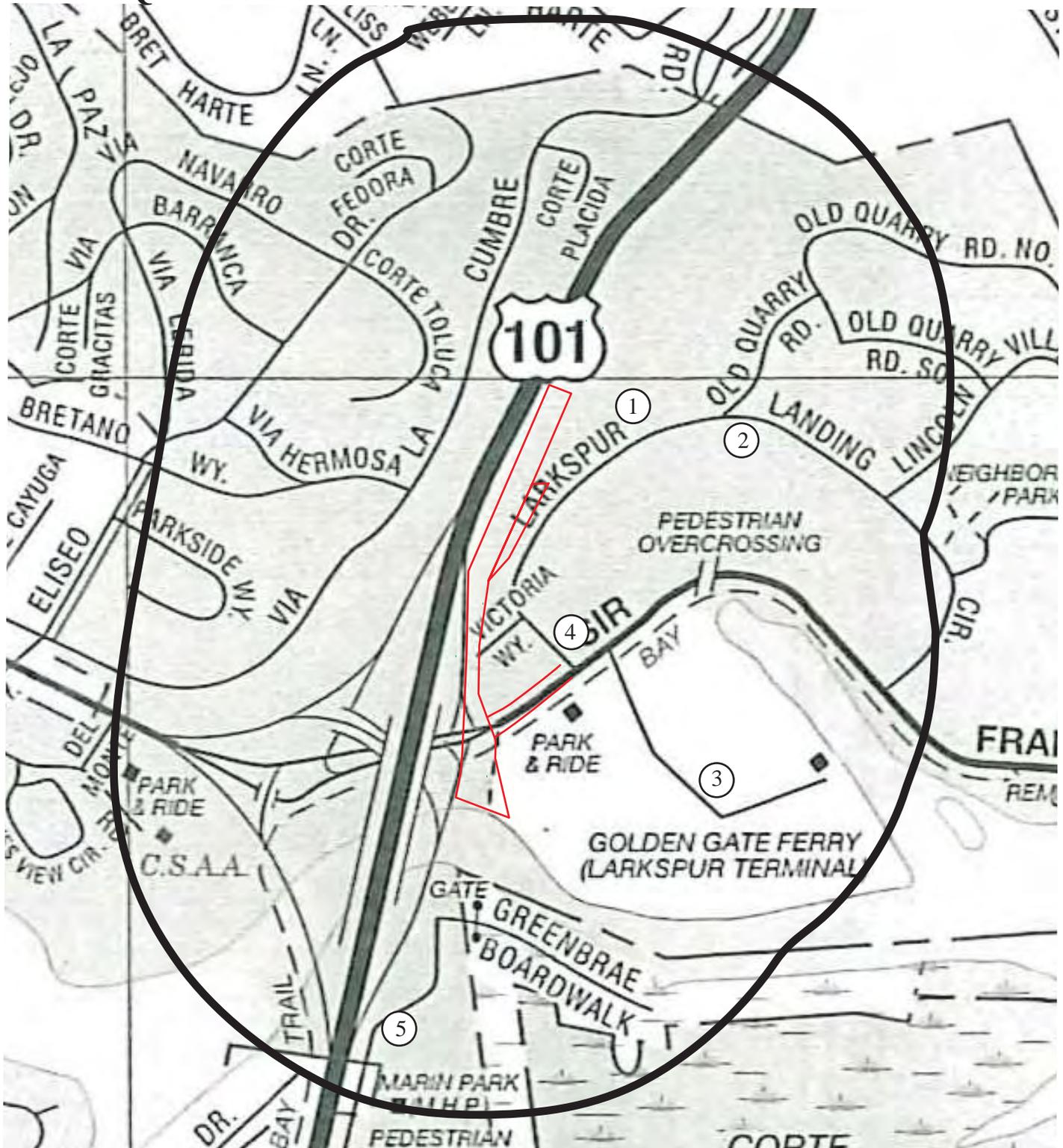
Figure 3B: Unpaved parking lot north of Sir Francis Drake Boulevard.



Figure 4: Marshlands and Corte Madera Creek near proposed Sir Francis Drake Boulevard overcrossing.

# SITES ON REGULATORY DATABASES WITHIN ONE-QUARTER MILE OF THE PROJECT SITE

Figure 5



**Legend**

- ① Site on Regulatory List or Database
- One-Quarter Mile Radius
- Project Site (approximate)

**Note:**

Numbers inside circles denote site numbers. See Table 3 for site names, addresses, and status.

Source: EDR, 2008.

## Central Marin Ferry Connection Project Larkspur, California



## **TABLES**

**TABLE 1: Summary of Historical Land Uses from Topographic Maps and Aerial Photographs, Central Marin Ferry Connection Project, Larkspur, California**

Historical Resource	Project Site
1897 Topographic Map	The Northwestern Pacific Railroad was located at the Project site and connected to a tunnel at the northern limit of the Project. A light-duty road was located along the general alignment of the current Sir Francis Drake Boulevard. Two small structures were located adjacent to and east of the railroad within the Project site.
1946 Aerial Photograph	U.S. 101 was located adjacent to and west of the Project site. Approximately four structures and docks were located at the Project site immediately north of Corte Madera Creek between the Northwestern Pacific Railroad and U.S. 101. The area east of the Project site was undeveloped and appeared to be marshlands. The area west of the Project site was undeveloped and consisted of grass-covered terrain with scattered trees. A railroad spur track extended to the northwest from the Project site toward a quarry. A conveyor system was located east of the Project site near the base of the quarry operations and connected to a dock on Corte Madera Creek. Approximately nine small buildings were located around the conveyor system. The two buildings noted in the 1897 topographic had been removed.
1947 Topographic Map	No significant land use changes noted since the 1946 aerial photograph.
1950 Topographic Map	No significant land use changes noted since the 1946 aerial photograph.
1952 Aerial Photograph	A series of small structures were located east of the Project site. Five large above ground storage tanks were constructed east of the conveyor system for a sewage disposal facility. A brick kiln was located next to the sewage disposal facility and Corte Madera Creek.
1965 Aerial Photograph	U.S. 101 was widened from a two-lane highway to a six-lane highway. The four structures previously noted in the 1946 aerial photograph at the Project site immediately north of Corte Madera Creek between the Northwestern Pacific railroad and U.S. 101 had been removed. Two large commercial structures were located along Corte Madera creek immediately southeast of the Project site. Two large buildings were constructed east of the Project site near the base of the quarry. The development of small structures east of the Project site increased. The area west of the Project site and U.S. 101 was developed into residences.
1980 Topographic Map	Commercial development increased east of the Project site. The Northwestern Pacific tunnel was designated "abandoned". Three aboveground storage tanks were located southeast of the Project site near Corte Madera Creek. The sewage disposal facility expanded, adding more aboveground storage tanks and two sewage treatment ponds north of the facility.
1982 Aerial Photograph	A fourth aboveground storage tank was constructed southeast of the Project site near Corte Madera Creek.
1993 Topographic Map and Aerial Photograph	Quarry operations had ceased and the quarry area was developed into residential apartment complexes. Commercial development increased immediately east of the Project site. An unpaved parking lot was located in the southern portion of the Project site north of Sir Francis Drake Boulevard.
1998 Aerial Photograph	No significant land use changes noted since the 1993 aerial photograph.
2005 Aerial Photograph	No significant land use changes noted since the 1993 aerial photograph.

Notes:

See Figure 1 for Project location and area.

See Appendix A for aerial photographs and topographic maps reviewed.

**TABLE 2: Regulatory Lists and Databases Reviewed for Sites Within One-Quarter Mile of the Project, Central Marin Ferry Connection Project, Larkspur, California**

Agency Database	Agency Description and Reference Date
<b>Sites that Generate, Transport, Store, Treat and/or Dispose of Hazardous Materials</b>	
Aboveground Storage Tanks (AST)	State listed sites with registered aboveground storage tanks prior to 1 November 2007.
Drycleaners	Federal and state listed sites that are related to dry cleaning facilities prior to 31 July 2007.
Facility and Manifest Data (HAZNET)	State listed sites that generate hazardous waste manifests prior to 31 December 2006.
Facility Index System (FINDS)	Federal listed sites referenced in other regulatory databases prior to 3 April 2008.
Hazardous Substance Storage Container Database (HIST UST)	State listed sites historically registered for underground storage tanks prior to 15 October 1990.
Resource Conservation and Recovery Act - Non Generator (RCRA-NonGen)	Federal listed sites that formerly generated, transported, stored, treated and/or disposed of hazardous waste prior to 6 March 2008.
Resource Conservation and Recovery Act - Small Quantity Generators (RCRA-SQG)	Federal listed sites that generate, transport, store, treat and/or dispose between 100 kilograms (kg) and 1,000 kg of hazardous waste per month prior to 6 March 2008.
Underground Storage Tanks (UST)	State listed sites with registered underground storage tanks prior to 8 April 2008.
Waste Discharge System (WDS)	State sites that have been issued waste discharge requirements prior to 19 June 2007.
<b>Sites with Hazardous Material Releases</b>	
Emergency Response Notification System (ERNS)	Federal database that records information on reported releases of oil and hazardous materials prior to 31 December, 2007.

Notes

See Appendix B for the complete EDR report reviewed.

**TABLE 3: Sites on Regulatory Lists and Databases within One-Quarter Mile of the Project, Central Marin Ferry Connection Project, Larkspur, California**

<b>Figure 5 Map ID</b>	<b>Site Name, Address</b>	<b>Environmental Regulatory Database</b>	<b>Environmental Regulatory Database Summary</b>	<b>Status of Hazardous Materials Release Sites</b>
1	LIFESOURCE INC, 900 LARKSPUR LANDING CIR #250	FINDS; RCRA-SQG	No hazardous waste violations reported. A description of the hazardous wastes generated was not reported.	---
2	MAXWELL THE CLEANER, 1401 LARKSPUR LANDING CIRCL	FINDS; RCRA- NonGen; DRYCLEANERS; HAZNET	The site is a dry cleaner facility and is listed as a generator of halogenated organic compounds and solvents. No hazardous waste violations reported.	---
3	GOLDEN GATE FERRY/LARKSPUR FERRY LANDING,  101 E SIR FRANCIS DRAKE BLVD	WDS; PROP65; HAZNET; AST	Listed as a generator of waste oil and other organic and inorganic wastes. No hazardous waste violations reported. The facility has an active wastewater discharge permit. One 300,000 gallon AST was reported at the site. The contents of the AST were not reported.	---
		ERNS	Approximately one gallon of waste oil was released in November 1987. Cleanup was not required.	Closed
4	101 SIR FRANCIS DRAKE BLVD/LARKSPUR FERRY TERMINAL	ERNS	Approximately twenty gallons of waste oil released in November 1992 was cleaned up. Approximately five gallons of waste oil was released due to equipment failure in November 1994. The spill was cleaned up by Erickson, Inc.	Closed
5	BREMIER PROPERTY / CANOE TRIPS WEST, 2170 REDWOOD HWY.	UST; HIST UST	One 2,000-gallon gasoline UST used for in-house fueling reported at the site.	---

Notes:

"---" = Information not applicable.

See Appendix B for complete EDR report.

See Figure 5 for site locations.

See Table 2 for a summary of database acronyms, descriptions, and reference dates.

## **APPENDICES**

**APPENDIX A**  
**HISTORICAL LAND USE DOCUMENTS**  
**(Portable Document Format on CD-ROM)**



**EDR**® Environmental  
Data Resources Inc

# **The EDR Aerial Photo Decade Package**

**Central Marin Ferry Connection Project  
Sir Francis Drake Blvd/Route 101  
Larkspur, CA 94939**

**Inquiry Number: 2213562.5**

**May 07, 2008**

## **The Standard in Environmental Risk Information**

440 Wheelers Farms Road  
Milford, Connecticut 06461

### **Nationwide Customer Service**

Telephone: 1-800-352-0050  
Fax: 1-800-231-6802  
Internet: [www.edrnet.com](http://www.edrnet.com)

# EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDRs professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

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**Date EDR Searched Historical Sources:**

Aerial Photography May 07, 2008

**Target Property:**

Sir Francis Drake Blvd/Route 101

Larkspur, CA 94939

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
1946	Aerial Photograph. Scale: 1"=655'	Flight Year: 1946	Jack Ammann
1952	Aerial Photograph. Scale: 1"=555'	Flight Year: 1952	PACIFIC AIR
1965	Aerial Photograph. Scale: 1"=333'	Flight Year: 1965	CARTWRIGHT
1982	Aerial Photograph. Scale: 1"=690'	Flight Year: 1982	WSA
1993	Aerial Photograph. Scale: 1"=666'	Flight Year: 1993	USGS
1998	Aerial Photograph. Scale: 1"=666'	Flight Year: 1998	USGS
2005	Aerial Photograph. Scale: 1"=484'	Flight Year: 2005	EDR



INQUIRY #: 2213562.5

YEAR: 1946

| = 655'





**INQUIRY #:** 2213562.5

**YEAR:** 1952

| = 555'





**INQUIRY #:** 2213562.5

**YEAR:** 1965

| = 333'





**INQUIRY #:** 2213562.5

**YEAR:** 1982

— = 690'





**INQUIRY #:** 2213562.5

**YEAR:** 1993

| = 666'





**INQUIRY #:** 2213562.5

**YEAR:** 1998

| = 666'





**INQUIRY #:** 2213562.5

**YEAR:** 2005

| = 484'



# Certified Sanborn® Map Report



Sanborn® Library search results  
Certification # ADF3-4B94-8CC3

**Central Marin Ferry Connection Project**  
**Sir Francis Drake Blvd/Route 101**  
**Larkspur, CA 94939**

**Inquiry Number 2213562.3**

**May 06, 2008**



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# Certified Sanborn® Map Report

5/06/08

**Site Name:**

Central Marin Ferry Connection  
Sir Francis Drake Blvd/Route  
Larkspur, CA 94939

**Client Name:**

Baseline Environmental Cons.  
5900 Hollis Street  
Emeryville, CA 94608

EDR Inquiry # 2213562.3

Contact: Patrick



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## Certified Sanborn Results:

**Site Name:** Central Marin Ferry Connection Project  
**Address:** Sir Francis Drake Blvd/Route 101  
**City, State, Zip:** Larkspur, CA 94939  
**Cross Street:**  
**P.O. #** NA  
**Project:** Y6322-01  
**Certification #** ADF3-4B94-8CC3



Sanborn® Library search results  
Certification # ADF3-4B94-8CC3

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# **EDR Historical Topographic Map Report**

**Central Marin Ferry Connection Project**

**Sir Francis Drake Blvd/Route 101  
Larkspur, CA 94939**

**Inquiry Number: 2213562.4**

**May 07, 2008**



**EDR**® Environmental  
Data Resources Inc

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# EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

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Please contact EDR at 1-800-352-0050  
with any questions or comments.

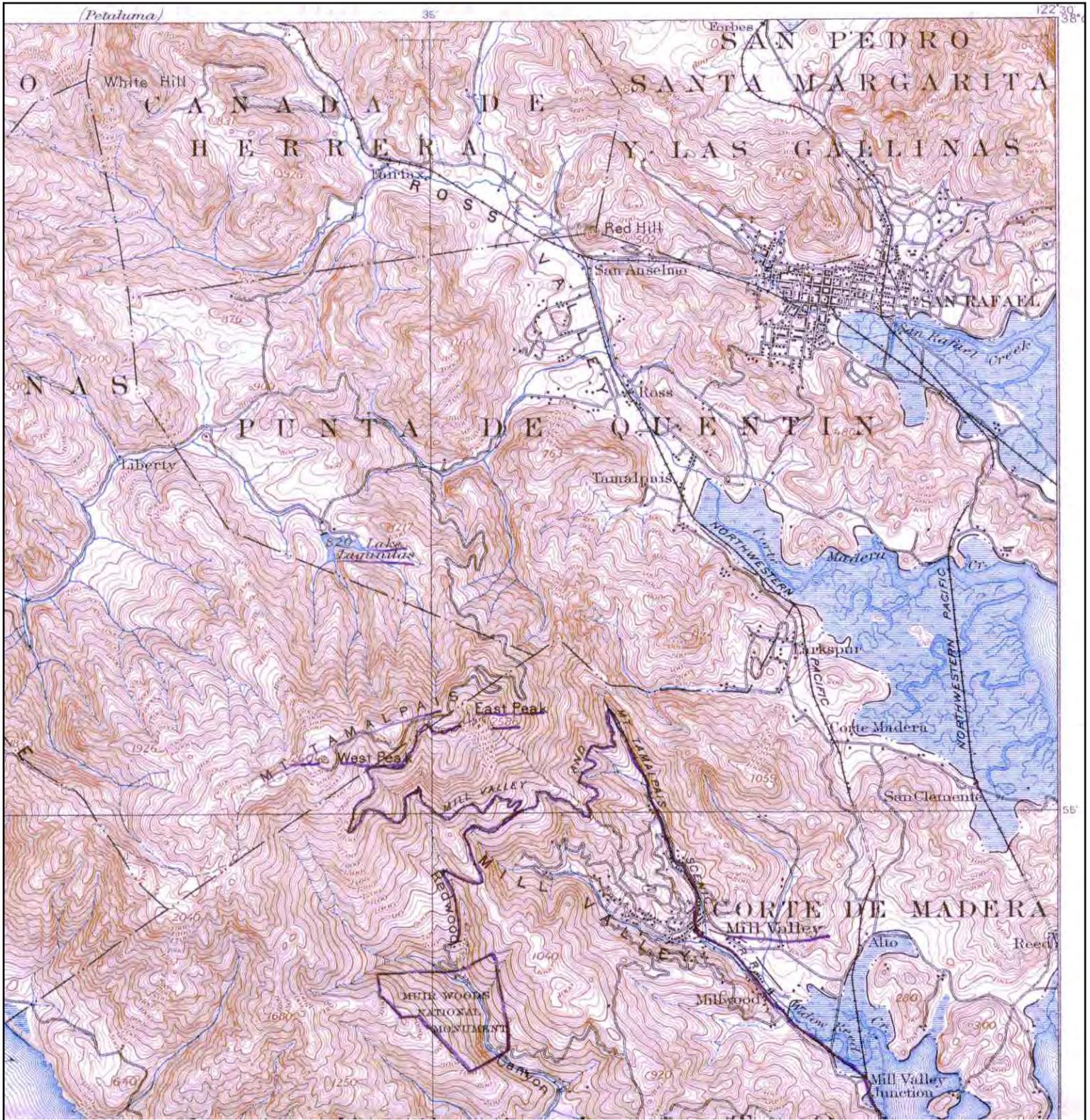
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# Historical Topographic Map



	TARGET QUAD	SITE NAME:	Central Marin Ferry Connection Project	CLIENT:	Baseline Environmental Cons.
	NAME: TAMALPAIS	ADDRESS:	Sir Francis Drake Blvd/Route 101 Larkspur, CA 94939	CONTACT:	Patrick
	MAP YEAR: 1897	LAT/LONG:	37.9462 / 122.514	INQUIRY#:	2213562.4
	SERIES: 15			RESEARCH DATE:	05/07/2008
	SCALE: 1:62500				

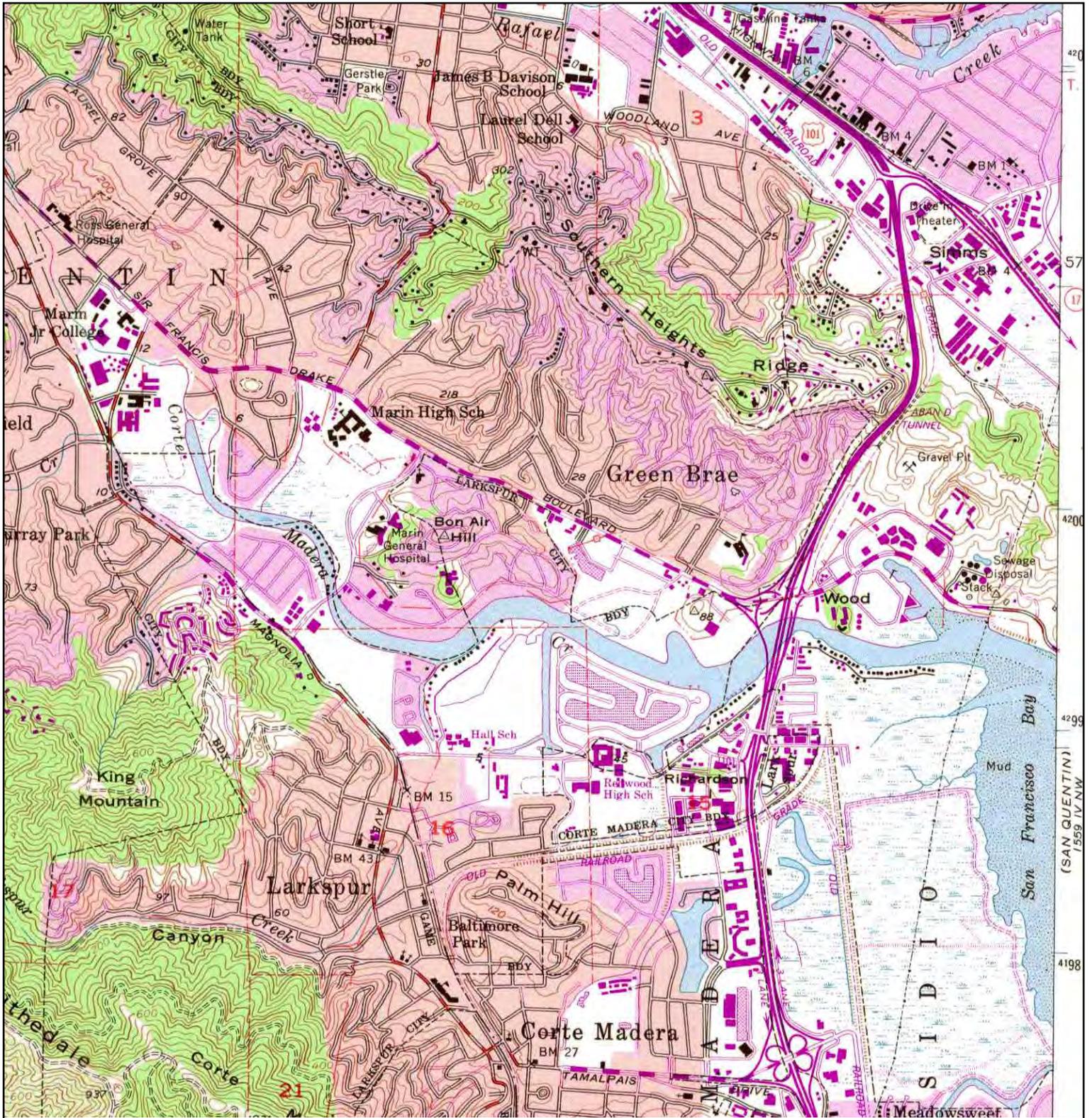


# Historical Topographic Map



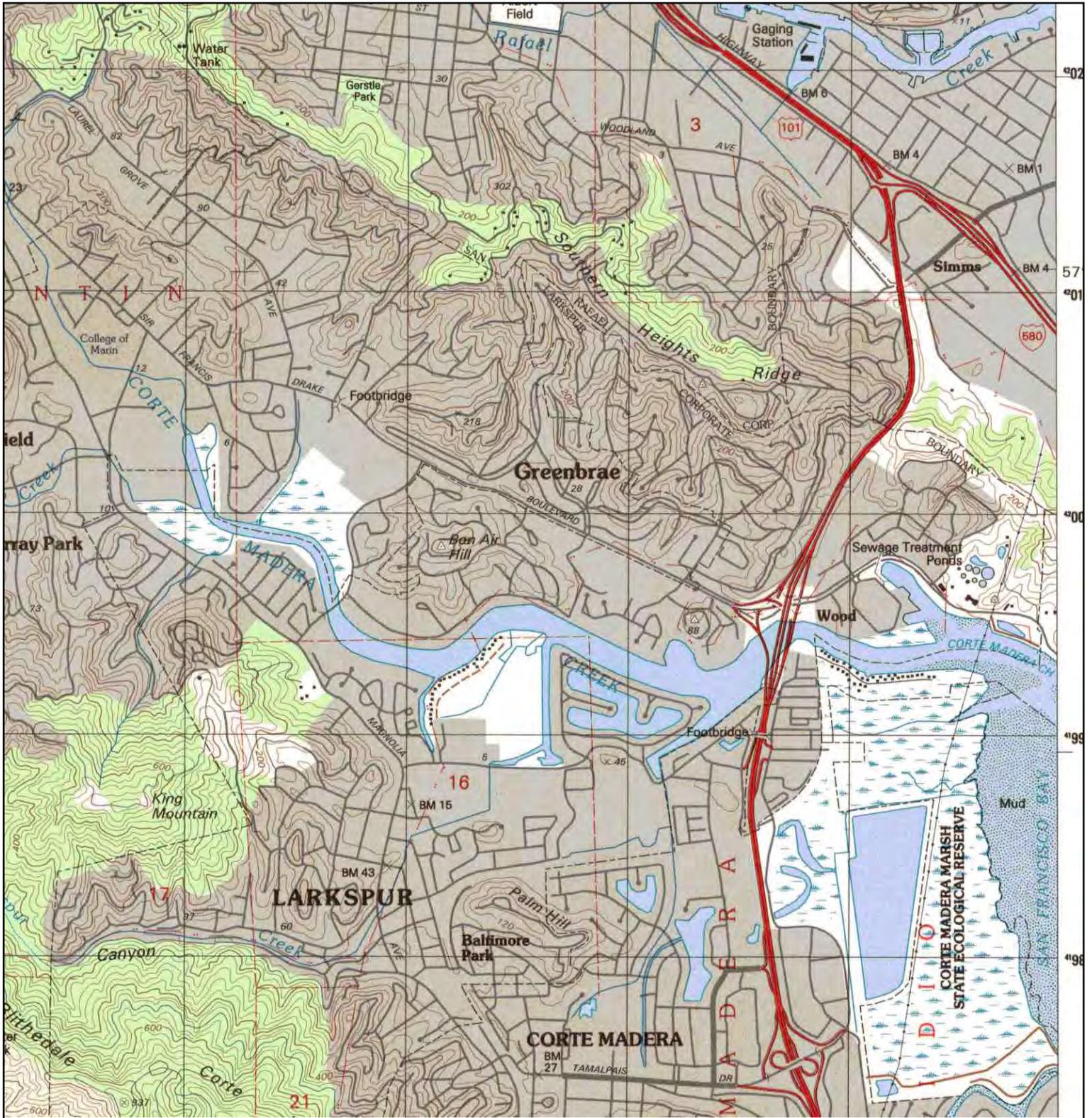
<p>N</p> 	TARGET QUAD	SITE NAME:	Central Marin Ferry Connection Project	CLIENT:	Baseline Environmental Cons.
	NAME: MOUNT TAMALPAIS	ADDRESS:	Sir Francis Drake Blvd/Route 101 Larkspur, CA 94939	CONTACT:	Patrick
	MAP YEAR: 1950	LAT/LONG:	37.9462 / 122.514	INQUIRY#:	2213562.4
	SERIES: 15			RESEARCH DATE:	05/07/2008
	SCALE: 1:62500				

# Historical Topographic Map



<p>N ↑</p>	TARGET QUAD	SITE NAME:	Central Marin Ferry Connection Project	CLIENT:	Baseline Environmental Cons.
	NAME: SAN RAFAEL	ADDRESS:	Sir Francis Drake Blvd/Route 101	CONTACT:	Patrick
	MAP YEAR: 1980	LAT/LONG:	37.9462 / 122.514	INQUIRY#:	2213562.4
	PHOTOREVISED FROM: 1954			RESEARCH DATE:	05/07/2008
	SERIES: 7.5				
	SCALE: 1:24000				

# Historical Topographic Map



<p>N</p>	TARGET QUAD	SITE NAME:	Central Marin Ferry Connection Project	CLIENT:	Baseline Environmental Cons.
	NAME: SAN RAFAEL	ADDRESS:	Sir Francis Drake Blvd/Route 101	CONTACT:	Patrick
	MAP YEAR: 1993	LAT/LONG:	37.9462 / 122.514	INQUIRY#:	2213562.4
	SERIES: 7.5			RESEARCH DATE:	05/07/2008
	SCALE: 1:24000				

**APPENDIX B**  
**REGULATORY DATABASE REPORTS**  
**(Portable Document Format on CD-ROM)**



**EDR**® Environmental  
Data Resources Inc

## **The EDR Radius Map with GeoCheck®**

**Central Marin Ferry Connection Project  
Sir Francis Drake Blvd/Route 101  
Larkspur, CA 94939**

**Inquiry Number: 2213562.2s**

**May 06, 2008**

### **The Standard in Environmental Risk Information**

440 Wheelers Farms Road  
Milford, Connecticut 06461

#### **Nationwide Customer Service**

Telephone: 1-800-352-0050  
Fax: 1-800-231-6802  
Internet: [www.edrnet.com](http://www.edrnet.com)

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***Thank you for your business.***  
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## EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

### TARGET PROPERTY INFORMATION

#### ADDRESS

SIR FRANCIS DRAKE BLVD/ROUTE 101  
LARKSPUR, CA 94939

#### COORDINATES

Latitude (North): 37.946160 - 37° 56' 46.2"  
Longitude (West): 122.513570 - 122° 30' 48.9"  
Universal Transverse Mercator: Zone 10  
UTM X (Meters): 542739.6  
UTM Y (Meters): 4199747.5  
Elevation: 38 ft. above sea level

### USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 37122-H5 SAN RAFAEL, CA  
Most Recent Revision: 1999  
  
East Map: 37122-H4 SAN QUENTIN, CA  
Most Recent Revision: 1980

### TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

### DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

#### FEDERAL RECORDS

**NPL**..... National Priority List  
**Proposed NPL**..... Proposed National Priority List Sites  
**Delisted NPL**..... National Priority List Deletions  
**NPL LIENS**..... Federal Superfund Liens  
**CERCLIS**..... Comprehensive Environmental Response, Compensation, and Liability Information System  
**CERC-NFRAP**..... CERCLIS No Further Remedial Action Planned  
**LIENS 2**..... CERCLA Lien Information

## EXECUTIVE SUMMARY

<b>CORRACTS</b>	Corrective Action Report
<b>RCRA-TSDF</b>	RCRA - Transporters, Storage and Disposal
<b>RCRA-LQG</b>	RCRA - Large Quantity Generators
<b>RCRA-CESQG</b>	RCRA - Conditionally Exempt Small Quantity Generator
<b>RCRA-NonGen</b>	RCRA - Non Generators
<b>US ENG CONTROLS</b>	Engineering Controls Sites List
<b>US INST CONTROL</b>	Sites with Institutional Controls
<b>ERNS</b>	Emergency Response Notification System
<b>HMIRS</b>	Hazardous Materials Information Reporting System
<b>DOT OPS</b>	Incident and Accident Data
<b>US CDL</b>	Clandestine Drug Labs
<b>US BROWNFIELDS</b>	A Listing of Brownfields Sites
<b>DOD</b>	Department of Defense Sites
<b>FUDS</b>	Formerly Used Defense Sites
<b>LUCIS</b>	Land Use Control Information System
<b>CONSENT</b>	Superfund (CERCLA) Consent Decrees
<b>ROD</b>	Records Of Decision
<b>UMTRA</b>	Uranium Mill Tailings Sites
<b>ODI</b>	Open Dump Inventory
<b>DEBRIS REGION 9</b>	Torres Martinez Reservation Illegal Dump Site Locations
<b>MINES</b>	Mines Master Index File
<b>TRIS</b>	Toxic Chemical Release Inventory System
<b>TSCA</b>	Toxic Substances Control Act
<b>FTTS</b>	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
<b>HIST FTTS</b>	FIFRA/TSCA Tracking System Administrative Case Listing
<b>SSTS</b>	Section 7 Tracking Systems
<b>ICIS</b>	Integrated Compliance Information System
<b>PADS</b>	PCB Activity Database System
<b>MLTS</b>	Material Licensing Tracking System
<b>RADINFO</b>	Radiation Information Database
<b>FINDS</b>	Facility Index System/Facility Registry System
<b>RAATS</b>	RCRA Administrative Action Tracking System

### STATE AND LOCAL RECORDS

<b>HIST Cal-Sites</b>	Historical Calsites Database
<b>CA BOND EXP. PLAN</b>	Bond Expenditure Plan
<b>SCH</b>	School Property Evaluation Program
<b>Toxic Pits</b>	Toxic Pits Cleanup Act Sites
<b>CA WDS</b>	Waste Discharge System
<b>CA FID UST</b>	Facility Inventory Database
<b>SLIC</b>	Statewide SLIC Cases
<b>LIENS</b>	Environmental Liens Listing
<b>SWEEPS UST</b>	SWEEPS UST Listing
<b>CHMIRS</b>	California Hazardous Material Incident Report System
<b>DEED</b>	Deed Restriction Listing
<b>VCP</b>	Voluntary Cleanup Program Properties
<b>WIP</b>	Well Investigation Program Case List
<b>CDL</b>	Clandestine Drug Labs
<b>RESPONSE</b>	State Response Sites
<b>HAZNET</b>	Facility and Manifest Data
<b>AIRS</b>	Emissions Inventory Data
<b>HAULERS</b>	Registered Waste Tire Haulers Listing

### TRIBAL RECORDS

<b>INDIAN RESERV</b>	Indian Reservations
----------------------	---------------------

## EXECUTIVE SUMMARY

**INDIAN ODI**..... Report on the Status of Open Dumps on Indian Lands  
**INDIAN LUST**..... Leaking Underground Storage Tanks on Indian Land  
**INDIAN UST**..... Underground Storage Tanks on Indian Land

### EDR PROPRIETARY RECORDS

**Manufactured Gas Plants**... EDR Proprietary Manufactured Gas Plants

### SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property. Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

### FEDERAL RECORDS

**RCRA-SQG:** RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 03/06/2008 has revealed that there is 1 RCRA-SQG site within approximately 0.25 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b><i>LIFESOURCE INC</i></b>	<b><i>900 LARKSPUR LANDING CI</i></b>	<b><i>0 - 1/8</i></b>	<b><i>1</i></b>	<b><i>6</i></b>

### STATE AND LOCAL RECORDS

**SWF/LF:** The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, and dated 03/10/2008 has revealed that there are 2 SWF/LF sites within approximately 0.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
CENTRAL MARIN	CORTE MADERA	1/4 - 1/2 SSE	7	17
MARIN SANITARY SERVICE TRANSFE	1060 ANDERSEN DRIVE	1/4 - 1/2 NNE	22	52

## EXECUTIVE SUMMARY

**WMUDS/SWAT:** The Waste Management Unit Database System is used for program tracking and inventory of waste management units. The source is the State Water Resources Control Board.

A review of the WMUDS/SWAT list, as provided by EDR, and dated 04/01/2000 has revealed that there is 1 WMUDS/SWAT site within approximately 0.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b>LARKSPUR CAR WASH</b>	<b>2066 REDWOOD HWY</b>	<b>1/4 - 1/2 S</b>	<b>C16</b>	<b>39</b>

**Cortese:** The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.

A review of the Cortese list, as provided by EDR, and dated 04/01/2001 has revealed that there are 9 Cortese sites within approximately 0.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b>MARIN SANITARY SERVICE</b>	<b>525 JACOBY ST</b>	<b>1/4 - 1/2 ENE</b>	<b>B11</b>	<b>28</b>

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b>CHEVRON</b>	<b>301 SIR FRANCIS DRAKE B</b>	<b>1/4 - 1/2 WNW</b>	<b>8</b>	<b>18</b>
<b>SUPER 7</b>	<b>2070 OLD REDWOOD HWY</b>	<b>1/4 - 1/2 SSW</b>	<b>10</b>	<b>26</b>
<b>ALLEN HEATING &amp; SHEET METAL</b>	<b>36 INDUSTRIAL WY</b>	<b>1/4 - 1/2 S</b>	<b>13</b>	<b>31</b>
<b>MARIN CAR WASH</b>	<b>2066 REDWOOD HWY</b>	<b>1/4 - 1/2 S</b>	<b>C14</b>	<b>33</b>
<b>CHEVRON #20-4419</b>	<b>2066 REDWOOD HIGHWAY</b>	<b>1/4 - 1/2 S</b>	<b>C15</b>	<b>35</b>
<b>VIACOM CABLEVISION</b>	<b>1111 ANDERSEN DR</b>	<b>1/4 - 1/2 NE</b>	<b>19</b>	<b>42</b>
<b>EXXON</b>	<b>200 NELLEN AVE</b>	<b>1/4 - 1/2 SSW</b>	<b>20</b>	<b>45</b>
<b>CORTE MADERA CORPORATION YARD</b>	<b>81 LUCKY DR</b>	<b>1/4 - 1/2 SW</b>	<b>21</b>	<b>50</b>

**SWRCY:** A listing of recycling facilities in California.

A review of the SWRCY list, as provided by EDR, and dated 04/07/2008 has revealed that there is 1 SWRCY site within approximately 0.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b>MARIN RECYCLING AND RESOURCE R</b>	<b>535 JACOBY ST</b>	<b>1/4 - 1/2 ENE</b>	<b>B12</b>	<b>31</b>

**LUST:** The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 04/08/2008 has revealed that there are 10 LUST sites within approximately 0.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b>MARIN SANITARY SERVICE</b> Facility Status: Leak being confirmed	<b>525 JACOBY ST</b>	<b>1/4 - 1/2 ENE</b>	<b>B11</b>	<b>28</b>

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b>CHEVRON</b> Facility Status: Case Closed	<b>301 SIR FRANCIS DRAKE B</b>	<b>1/4 - 1/2 WNW</b>	<b>8</b>	<b>18</b>

## EXECUTIVE SUMMARY

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b>SUPER 7</b> Facility Status: Case Closed	<b>2070 OLD REDWOOD HWY</b>	<b>1/4 - 1/2 SSW</b>	<b>10</b>	<b>26</b>
<b>ALLEN HEATING &amp; SHEET METAL</b> Facility Status: Case Closed	<b>36 INDUSTRIAL WY</b>	<b>1/4 - 1/2 S</b>	<b>13</b>	<b>31</b>
<b>MARIN CAR WASH</b> Facility Status: Preliminary site assessment underway	<b>2066 REDWOOD HWY</b>	<b>1/4 - 1/2 S</b>	<b>C14</b>	<b>33</b>
<b>CHEVRON #20-4419</b> SHELL Facility Status: Case Closed	<b>2066 REDWOOD HIGHWAY</b> 295 SIR FRANCIS DRAKE B	<b>1/4 - 1/2 S</b> <b>1/4 - 1/2 WNW</b>	<b>C15</b> <b>17</b>	<b>35</b> <b>40</b>
<b>VIACOM CABLEVISION</b> Facility Status: Case Closed	<b>1111 ANDERSEN DR</b>	<b>1/4 - 1/2 NE</b>	<b>19</b>	<b>42</b>
<b>EXXON</b> Facility Status: Case Closed	<b>200 NELLEN AVE</b>	<b>1/4 - 1/2 SSW</b>	<b>20</b>	<b>45</b>
<b>CORTE MADERA CORPORATION YARD</b> Facility Status: Case Closed	<b>81 LUCKY DR</b>	<b>1/4 - 1/2 SW</b>	<b>21</b>	<b>50</b>

**UST:** The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the UST list, as provided by EDR, and dated 04/08/2008 has revealed that there is 1 UST site within approximately 0.25 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
BREMIER PROPERTY	2170 REDWOOD HWY.	1/8 - 1/4 S	A5	16

**HIST UST:** Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there is 1 HIST UST site within approximately 0.25 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
CANOE TRIPS WEST	2170 REDWOOD HWY	1/8 - 1/4 S	A4	16

**AST:** The Aboveground Storage Tank database contains registered ASTs. The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the AST list, as provided by EDR, and dated 11/01/2007 has revealed that there is 1 AST site within approximately 0.25 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
GOLDEN GATE FERRY	101 EAST SIR FRANCIS DR	1/8 - 1/4 E	6	17

## EXECUTIVE SUMMARY

**Notify 65:** Notify 65 records contain facility notifications about any release that could impact drinking water and thereby expose the public to a potential health risk. The data come from the State Water Resources Control Board's Proposition 65 database.

A review of the Notify 65 list, as provided by EDR, and dated 10/21/1993 has revealed that there are 5 Notify 65 sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
MARIN SANITARY SERVICES	1050 ANDERSEN	1/4 - 1/2 NE	18	42
<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b>GOLDEN GATE FERRY</b>	<b>101 E SIR FRANCIS DRAKE</b>	<b>0 - 1/8 E</b>	<b>3</b>	<b>14</b>
<b>GOLDEN GATE TRANSIT</b>	<b>1011 ANDERSON ST</b>	<b>1/2 - 1 N</b>	<b>23</b>	<b>53</b>
SAN RAFAEL U-HAUL CENTER	1205 EAST FRANCISCO BLV	1/2 - 1 ENE	24	66
<b>ALBERT'S TRANSMISSION SERVICE</b>	<b>1249 FRANCISCO BLVD E</b>	<b>1/2 - 1 NE</b>	<b>25</b>	<b>66</b>

**DRYCLEANERS:** A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaners' agents; linen supply; coin-operated laundries and cleaning; drycleaning plants except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

A review of the DRYCLEANERS list, as provided by EDR, and dated 07/31/2007 has revealed that there is 1 DRYCLEANERS site within approximately 0.25 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b>MAXWELL THE CLEANER</b>	<b>1401 LARKSPUR LANDING C</b>	<b>0 - 1/8 E</b>	<b>2</b>	<b>7</b>

**ENVIROSTOR:** The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 02/26/2008 has revealed that there are 11 ENVIROSTOR sites within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
DIESEL ENERGY INCORPORATED Facility Status: Refer: Other Agency	40 WOODLAND AVENUE	1/2 - 1 NNW	30	82
<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<b>CORPORATION YARD (TREATMENT PL</b> Facility Status: No Further Action	<b>2000 LARKSPUR LANDING C</b>	<b>1/4 - 1/2 E</b>	<b>9</b>	<b>24</b>
<b>MARIN DODGE</b> Facility Status: Refer: RWQCB	<b>1075 FRANCISCO BLVD E</b>	<b>1/2 - 1 NE</b>	<b>26</b>	<b>70</b>
<b>PG &amp; E SERVICE CENTER</b> Facility Status: Inactive - Needs Evaluation	<b>1220 ANDERSEN DR</b>	<b>1/2 - 1 E</b>	<b>27</b>	<b>75</b>

## EXECUTIVE SUMMARY

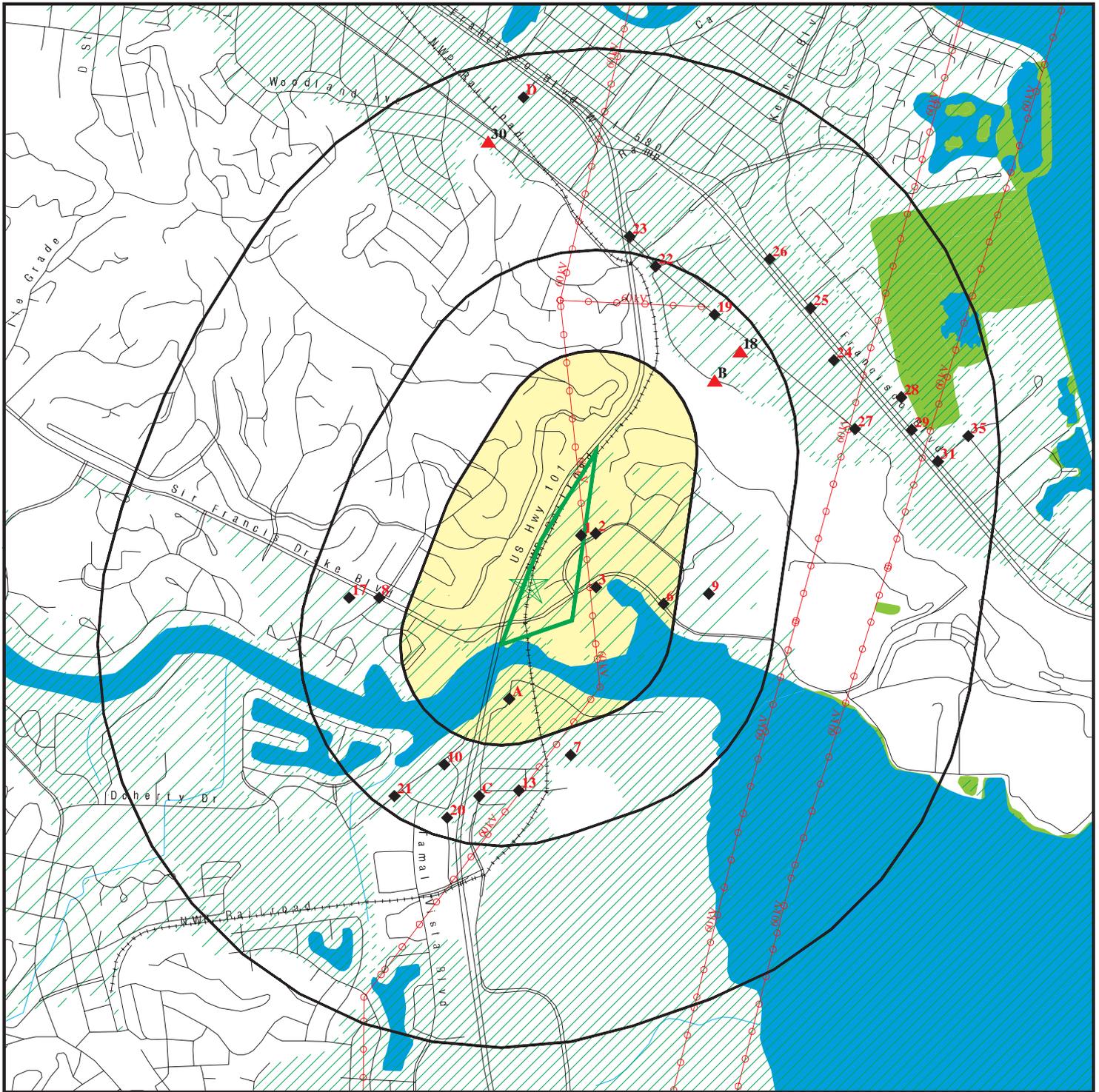
<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
SHORELINE CENTER Facility Status: Refer: Other Agency	111 SHORELINE BLVD.	1/2 - 1 E	28	78
<b>SAN QUENTIN DISPOSAL SITE</b> Facility Status: Refer: RWQCB	<b>1615 EAST FRANCISCO BLV</b>	<b>1/2 - 1 E</b>	<b>29</b>	<b>79</b>
GHILOTTI BROTHERS DISPOSAL SIT Facility Status: Refer: RWQCB	FRANCISCO BOULEVARD / P	1/2 - 1 E	31	83
GRIESE RADIATOR REPAIR Facility Status: Refer: Other Agency	10 BAXTERS COURT	1/2 - 1 NNW D32		85
<b>WESTERN CHROME PLATING AN</b> Facility Status: Refer: Other Agency	<b>11 BAXTERS</b>	<b>1/2 - 1 NNW D33</b>		<b>86</b>
<b>SPECIFICATION CHROMIUM CO</b> Facility Status: Inactive - Needs Evaluation	<b>14 BAXTERS</b>	<b>1/2 - 1 NNW D34</b>		<b>88</b>
BAYVIEW BUSINESS PARK Facility Status: Refer: RWQCB	PELICAN WAY / KERNER	1/2 - 1 E	35	90

## EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

<u>Site Name</u>	<u>Database(s)</u>
SHELL SERVICE STATION	Cortese, SWEEPS UST
SAN QUENTIN STATE PRISON	RCRA-SQG, FINDS, CHMIRS, CA FID UST, HIST UST, SWEEPS UST, ENVIROSTOR RESPONSE, ENVIROSTOR DEED, VCP, ENVIROSTOR CHMIRS, SLIC
BAXTERS COURT AREA	CERC-NFRAP
PG&E SAN RAFAEL FORMER MGP	CERC-NFRAP
US 101 EST BLYTHEDALE EXIT	CERC-NFRAP
PG&E GAS PLANT SAN RAFAEL 104 5A	CERC-NFRAP
PG&E GAS PLANT SAN RAFAEL 104 5	CERC-NFRAP
CAPTAINS COVE	UST
VILLAGE PUMP STATION (TOWN OF CM) NWRP	UST
SHOREBIRD MARSH PUMP STATION (TOWN OF CM)	UST
L.G. BRIEMIER INC.	UST
MELLOW MOTORS	UST
BOYCE RESIDENCE	UST
SAN FRANCISCO ENERGY COGENERATION PLANT	VCP, ENVIROSTOR
SAN QUENTIN CONDEMNED INMATE COMPLEX	VCP, ENVIROSTOR
BENJIE PICARD/KATHY KOTULAK	HIST UST
SHELL	HAZNET, CA FID UST
MARIN COUNTY HAZARDOUS WASTE PROGRAM	HAZNET
PACIFIC BELL	RCRA-SQG, FINDS
LARKSPUR FERRY LANDING	ERNS
LARKSPUR FERRY TERMINAL	ERNS
101 SIR FRANCIS DRAKE BLVD/LARKSPUR FERRY TERMINAL	ERNS
101 E SIR FRANCIS DRAKE BLVD/LARKSPUR FERRY TERMINAL	ERNS
LARKSPUR FERRY CHANNEL	FINDS
MARIN BOAT HOUSE	SLIC
MARIN/SONOMA MOSQUITO (FORMER)	SLIC
LARKSPUR FERRY CHANNEL	ICIS
GOLDEN GATE FERRY	AIRS
CORTE MADERA NELLIN AVE. CONNECTOR	ENVIROSTOR
LARKSPUR DISPOSAL SITE	ENVIROSTOR
BELLAM BOULEVARD LANDFILL	ENVIROSTOR

# OVERVIEW MAP - 2213562.2s



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

Indian Reservations BIA

Power transmission lines

Oil & Gas pipelines

100-year flood zone

500-year flood zone

National Wetland Inventory

Areas of Concern

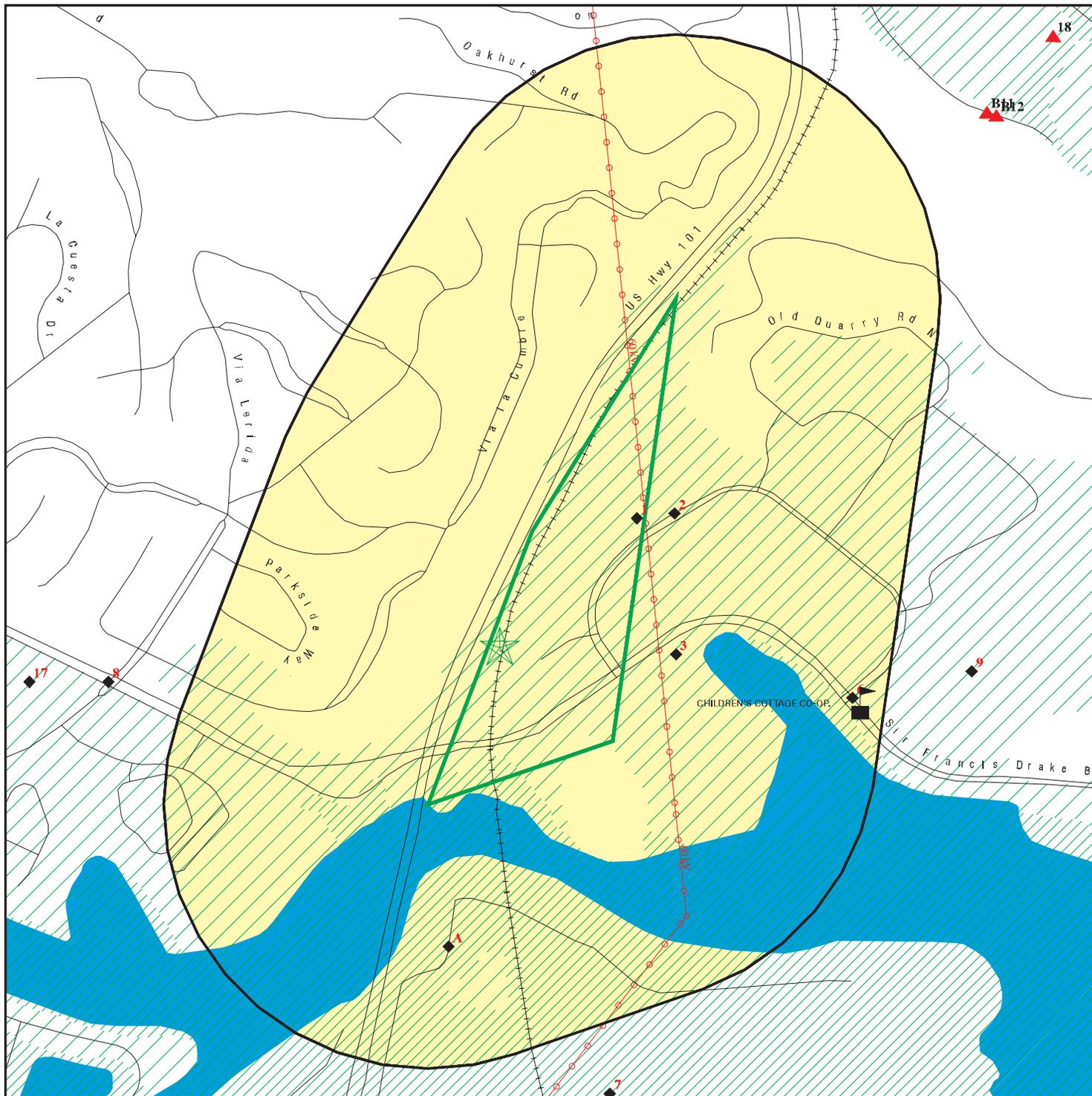


This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Central Marin Ferry Connection Project  
 ADDRESS: Sir Francis Drake Blvd/Route 101  
 Larkspur CA 94939  
 LAT/LONG: 37.9462 / 122.5136

CLIENT: Baseline Environmental Cons.  
 CONTACT: Patrick  
 INQUIRY #: 2213562.2s  
 DATE: May 06, 2008 7:01 pm

# DETAIL MAP - 2213562.2s



-  Target Property
-  Sites at elevations higher than or equal to the target property
-  Sites at elevations lower than the target property
-  Manufactured Gas Plants
-  Sensitive Receptors
-  National Priority List Sites
-  Dept. Defense Sites
-  Indian Reservations BIA
-  Power transmission lines
-  Oil & Gas pipelines
-  100-year flood zone
-  500-year flood zone
-  Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Central Marin Ferry Connection Project  
 ADDRESS: Sir Francis Drake Blvd/Route 101  
 Larkspur CA 94939  
 LAT/LONG: 37.9462 / 122.5136

CLIENT: Baseline Environmental Cons.  
 CONTACT: Patrick  
 INQUIRY #: 2213562.2s  
 DATE: May 06, 2008 7:01 pm

## MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
<b><u>FEDERAL RECORDS</u></b>								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.500	0	0	0	NR	NR	0
LIENS 2	TP		NR	NR	NR	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRA-TSDF		0.500	0	0	0	NR	NR	0
RCRA-LQG		0.250	0	0	NR	NR	NR	0
RCRA-SQG		0.250	1	0	NR	NR	NR	1
RCRA-CESQG		0.250	0	0	NR	NR	NR	0
RCRA-NonGen	TP		NR	NR	NR	NR	NR	0
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
ERNS	TP		NR	NR	NR	NR	NR	0
HMIRS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
DEBRIS REGION 9		0.500	0	0	0	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
<b><u>STATE AND LOCAL RECORDS</u></b>								
HIST Cal-Sites		1.000	0	0	0	0	NR	0
CA BOND EXP. PLAN		1.000	0	0	0	0	NR	0
SCH		0.250	0	0	NR	NR	NR	0
Toxic Pits		1.000	0	0	0	0	NR	0
SWF/LF		0.500	0	0	2	NR	NR	2

## MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CA WDS		TP	NR	NR	NR	NR	NR	0
WMUDS/SWAT		0.500	0	0	1	NR	NR	1
Cortese		0.500	0	0	9	NR	NR	9
SWRCY		0.500	0	0	1	NR	NR	1
LUST		0.500	0	0	10	NR	NR	10
CA FID UST		0.250	0	0	NR	NR	NR	0
SLIC		0.500	0	0	0	NR	NR	0
UST		0.250	0	1	NR	NR	NR	1
HIST UST		0.250	0	1	NR	NR	NR	1
AST		0.250	0	1	NR	NR	NR	1
LIENS		TP	NR	NR	NR	NR	NR	0
SWEEPS UST		0.250	0	0	NR	NR	NR	0
CHMIRS		TP	NR	NR	NR	NR	NR	0
Notify 65		1.000	1	0	1	3	NR	5
DEED		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
DRYCLEANERS		0.250	1	0	NR	NR	NR	1
WIP		0.250	0	0	NR	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
RESPONSE		1.000	0	0	0	0	NR	0
HAZNET		TP	NR	NR	NR	NR	NR	0
AIRS		TP	NR	NR	NR	NR	NR	0
HAULERS		TP	NR	NR	NR	NR	NR	0
ENVIROSTOR		1.000	0	0	1	10	NR	11
<b><u>TRIBAL RECORDS</u></b>								
INDIAN RESERV		1.000	0	0	0	0	NR	0
INDIAN ODI		0.500	0	0	0	NR	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
<b><u>EDR PROPRIETARY RECORDS</u></b>								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

**NOTES:**

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

1

**LIFESOURCE INC**  
**900 LARKSPUR LANDING CIR #250**  
**LARKSPUR, CA 94939**

**RCRA-SQG 100022222**  
**FINDS CAD981651771**

< 1/8  
1 ft.

**Relative:**  
**Lower**

**Actual:**  
**34 ft.**

RCRA-SQG:

Date form received by agency: 01/23/1987  
Facility name: LIFESOURCE INC  
Facility address: 900 LARKSPUR LANDING CIR #250  
LARKSPUR, CA 94939  
EPA ID: CAD981651771  
Mailing address: LARKSPUR LANDING CIR #250  
LARKSPUR, CA 94939  
Contact: ENVIRONMENTAL MANAGER  
Contact address: 900 LARKSPUR LANDING CIR #250  
LARKSPUR, CA 94939  
Contact country: US  
Contact telephone: (415) 461-0300  
Contact email: Not reported  
EPA Region: 09  
Classification: Small Small Quantity Generator  
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name: NORMAN C PLUMMER  
Owner/operator address: NOT REQUIRED  
NOT REQUIRED, ME 99999  
Owner/operator country: Not reported  
Owner/operator telephone: (415) 555-1212  
Legal status: Private  
Owner/Operator Type: Owner  
Owner/Op start date: Not reported  
Owner/Op end date: Not reported  
Owner/operator name: NOT REQUIRED  
Owner/operator address: NOT REQUIRED  
NOT REQUIRED, ME 99999  
Owner/operator country: Not reported  
Owner/operator telephone: (415) 555-1212  
Legal status: Private  
Owner/Operator Type: Operator  
Owner/Op start date: Not reported  
Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste: Unknown  
Mixed waste (haz. and radioactive): Unknown  
Recycler of hazardous waste: No  
Transporter of hazardous waste: No  
Treater, storer or disposer of HW: No  
Underground injection activity: No  
On-site burner exemption: Unknown  
Furnace exemption: Unknown  
Used oil fuel burner: No

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**LIFESOURCE INC (Continued)**

**1000222222**

Used oil processor: No  
User oil refiner: No  
Used oil fuel marketer to burner: No  
Used oil Specification marketer: No  
Used oil transfer facility: No  
Used oil transporter: No  
Off-site waste receiver: Commercial status unknown

Violation Status: No violations found

**FINDS:**

Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

**2**  
**East**  
**< 1/8**  
**0.027 mi.**  
**145 ft.**

**MAXWELL THE CLEANER**  
**1401 LARKSPUR LANDING CIRCL**  
**LARKSPUR, CA 94939**

**FINDS 1000698107**  
**HAZNET CAD983599853**  
**DRYCLEANERS**  
**AIRS**  
**RCRA-NonGen**

**Relative:**  
**Lower**

**FINDS:**

Other Pertinent Environmental Activity Identified at Site

**Actual:**  
**37 ft.**

California - Hazardous Waste Tracking System - Datamart

The NEI (National Emissions Inventory) database contains information on stationary and mobile sources that emit criteria air pollutants and their precursors, as well as hazardous air pollutants (HAPs).

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

**HAZNET:**

Gepaid: CAD983599853  
Contact: BARBARA OWENS  
Telephone: 4157212290  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 747 B STREET #3  
Mailing City,St,Zip: SAN RAFAEL, CA 949011811  
Gen County: Marin  
TSD EPA ID: CAT000613943  
TSD County: Sonoma  
Waste Category: Liquids with halogenated organic compounds > 1000 mg/l  
Disposal Method: Transfer Station  
Tons: 1.1400

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MAXWELL THE CLEANER (Continued)**

**1000698107**

Facility County: Marin  
  
Gepaid: CAD983599853  
Contact: BARBARA OWENS  
Telephone: 4157212290  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 747 B STREET #3  
Mailing City,St,Zip: SAN RAFAEL, CA 949011811  
Gen County: Marin  
TSD EPA ID: CAT000613943  
TSD County: Sonoma  
Waste Category: Liquids with halogenated organic compounds > 1000 mg/l  
Disposal Method: Not reported  
Tons: .0975  
Facility County: Marin

Gepaid: CAD983599853  
Contact: BARBARA OWENS  
Telephone: 4157212290  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 747 B STREET #3  
Mailing City,St,Zip: SAN RAFAEL, CA 949011811  
Gen County: Marin  
TSD EPA ID: CAT000613943  
TSD County: Sonoma  
Waste Category: Liquids with halogenated organic compounds > 1000 mg/l  
Disposal Method: Transfer Station  
Tons: 2.2125  
Facility County: Marin

Gepaid: CAD983599853  
Contact: BARBARA OWENS, SECY  
Telephone: 4157212290  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 747 B STREET #3  
Mailing City,St,Zip: SAN RAFAEL, CA 949011811  
Gen County: Marin  
TSD EPA ID: CA0000084517  
TSD County: Sacramento  
Waste Category: Liquids with halogenated organic compounds > 1000 mg/l  
Disposal Method: Not reported  
Tons: 0.41  
Facility County: Not reported

Gepaid: CAD983599853  
Contact: BARBARA OWENS, SECY  
Telephone: 4157212290  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 747 B ST STE 3  
Mailing City,St,Zip: SAN RAFAEL, CA 949013874  
Gen County: Marin  
TSD EPA ID: CA0000084517  
TSD County: Sacramento

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MAXWELL THE CLEANER (Continued)**

**1000698107**

Waste Category: Not reported  
Disposal Method: Transfer Station  
Tons: 0.1  
Facility County: Marin

[Click this hyperlink](#) while viewing on your computer to access 17 additional CA\_HAZNET: record(s) in the EDR Site Report.

**CLEANERS:**

EPA Id: CAD983599853  
NAICS Code: 81232  
NAICS Description: Drycleaning and Laundry Services (except Coin-Operated)  
Create Date: 8/8/1991  
Facility Active: No  
Inactive Date: 6/30/2005  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 747 B ST STE 3  
Mailing Address 2: Not reported  
Mailing State: CA  
Mailing Zip: 949013874  
Region Code: 4  
Owner Name: BARBARA OWENS  
Owner Address: 747 B ST STE 3  
Owner Address 2: Not reported  
Owner Telephone: Not reported  
Owner Fax Number: Not reported  
Contact Name: BARBARA OWENS SECY  
Contact Address: 747 B ST STE 3  
Contact Address 2: Not reported  
Contact Telephone: 4157212290  
Contact Fax Number: Not reported  
SIC Description: 7216 Drycleaning Plants Except Rug Cleaning  
SIC Description: 7211 Power Laundries Family and Commercial  
SIC Description: 7212 Garment Pressing and Agents for Laundries and Drycleaners  
SIC Description: 7219 Laundry and Garment Services NEC (alteration and repair)

**EMI:**

Year: 1995  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 6106  
Air District Name: BA  
SIC Code: 7216  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 1  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 0  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 1996

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MAXWELL THE CLEANER (Continued)**

**1000698107**

Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 6106  
Air District Name: BA  
SIC Code: 7216  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 1  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 0  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 1997  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 6106  
Air District Name: BA  
SIC Code: 7216  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 1  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 0  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 1998  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 6106  
Air District Name: BA  
SIC Code: 7216  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 1  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 0  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 1999  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 6106  
Air District Name: BA  
SIC Code: 7216  
Air District Name: BAY AREA AQMD

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MAXWELL THE CLEANER (Continued)**

**1000698107**

Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 1  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 0  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 2000  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 6106  
Air District Name: BA  
SIC Code: 7216  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 1  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 0  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 2001  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 6106  
Air District Name: BA  
SIC Code: 7216  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 0  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 0  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 2002  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 6106  
Air District Name: BA  
SIC Code: 7216  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 1  
Reactive Organic Gases Tons/Yr: 1  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 0

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MAXWELL THE CLEANER (Continued)**

**1000698107**

SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 2003  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 6106  
Air District Name: BA  
SIC Code: 7216  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 1  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 0  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 2004  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 6106  
Air District Name: BA  
SIC Code: 7216  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 0.54  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 0  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 2005  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 6106  
Air District Name: BA  
SIC Code: 7216  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 0  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 0  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

RCRA-NonGen:

Date form received by agency: 06/30/2006

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MAXWELL THE CLEANER (Continued)**

**1000698107**

Facility name: MAXWELL THE CLEANERS  
Facility address: 1401 LARKSPUR LANDING CIR  
LARKSPUR, CA 94939  
EPA ID: CAD983599853  
Mailing address: 747 B ST  
FIRST FLOOR  
SAN RAFAEL, CA 94901  
Contact: BARBARA OWENS  
Contact address: 1401 LARKSPUR LANDING CIR  
LARKSPUR, CA 94939  
Contact country: US  
Contact telephone: 415-721-2290  
Contact email: Not reported  
EPA Region: 09  
Classification: Non-Generator  
Description: Handler: Non-Generators do not presently generate hazardous waste

**Owner/Operator Summary:**

Owner/operator name: BARBARA OWENS  
Owner/operator address: 1401 LARKSPUR LANDING CIRCLE  
LARKSPUR, CA 94939  
Owner/operator country: Not reported  
Owner/operator telephone: (415) 461-4943  
Legal status: Private  
Owner/Operator Type: Owner  
Owner/Op start date: Not reported  
Owner/Op end date: Not reported

**Handler Activities Summary:**

U.S. importer of hazardous waste: No  
Mixed waste (haz. and radioactive): No  
Recycler of hazardous waste: No  
Transporter of hazardous waste: No  
Treater, storer or disposer of HW: No  
Underground injection activity: No  
On-site burner exemption: No  
Furnace exemption: No  
Used oil fuel burner: No  
Used oil processor: No  
User oil refiner: No  
Used oil fuel marketer to burner: No  
Used oil Specification marketer: No  
Used oil transfer facility: No  
Used oil transporter: No  
Off-site waste receiver: Commercial status unknown

**Historical Generators:**

Date form received by agency: 03/02/1992  
Facility name: MAXWELL THE CLEANERS  
Classification: Small Quantity Generator

Violation Status: No violations found

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

3  
East  
< 1/8  
0.048 mi.  
253 ft.

**GOLDEN GATE FERRY**  
**101 E SIR FRANCIS DRAKE BLVD**  
**LARKSPUR, CA 94939**

**Notify 65** **S100179340**  
**HAZNET** **N/A**  
**CA WDS**

**Relative:**  
**Lower**

Notify 65:  
Date Reported: Not reported  
Staff Initials: Not reported  
Board File Number: Not reported  
Facility Type: Not reported  
Discharge Date: Not reported  
Incident Description: 92806

**Actual:**  
**12 ft.**

HAZNET:  
Gepaid: CAL000111825  
Contact: GOLDEN GATE BRIDGE HWY/TRANS  
Telephone: 4159215858  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 1011 ANDERSEN DR  
Mailing City,St,Zip: SAN RAFAEL, CA 949015363  
Gen County: Marin  
TSD EPA ID: CAD083166728  
TSD County: Stanislaus  
Waste Category: Waste oil and mixed oil  
Disposal Method: Recycler  
Tons: 12.5100  
Facility County: Marin

Gepaid: CAL000111825  
Contact: GOLDEN GATE BRIDGE HWY/TRANS  
Telephone: 4159215858  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 1011 ANDERSEN DR  
Mailing City,St,Zip: SAN RAFAEL, CA 949015363  
Gen County: Marin  
TSD EPA ID: CAD059494310  
TSD County: Santa Clara  
Waste Category: Other organic solids  
Disposal Method: Disposal, Other  
Tons: .1000  
Facility County: Marin

Gepaid: CAL000111825  
Contact: GOLDEN GATE BRIDGE HWY/TRANS  
Telephone: 4159215858  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 1011 ANDERSEN DR  
Mailing City,St,Zip: SAN RAFAEL, CA 949015363  
Gen County: Marin  
TSD EPA ID: CAD980883177  
TSD County: Kern  
Waste Category: Unspecified oil-containing waste  
Disposal Method: Recycler  
Tons: 3.9615  
Facility County: Marin

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GOLDEN GATE FERRY (Continued)**

**S100179340**

Gepaid: CAL000111825  
Contact: GOLDEN GATE BRIDGE HWY/TRANS  
Telephone: 4159215858  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 1011 ANDERSEN DR  
Mailing City,St,Zip: SAN RAFAEL, CA 949015363  
Gen County: Marin  
TSD EPA ID: CAD980887418  
TSD County: 1  
Waste Category: Waste oil and mixed oil  
Disposal Method: Recycler  
Tons: 39.4482  
Facility County: Marin

Gepaid: CAL000111825  
Contact: GOLDEN GATE BRIDGE HWY/TRANS  
Telephone: 4159215858  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 1011 ANDERSEN DR  
Mailing City,St,Zip: SAN RAFAEL, CA 949015363  
Gen County: Marin  
TSD EPA ID: CAD982042475  
TSD County: Solano  
Waste Category: Asbestos-containing waste  
Disposal Method: Disposal, Land Fill  
Tons: 2.1070  
Facility County: Marin

[Click this hyperlink](#) while viewing on your computer to access  
46 additional CA\_HAZNET: record(s) in the EDR Site Report.

**CA WDS:**

Facility ID: San Francisco Bay 211003103  
Facility Type: Other - Does not fall into the category of Municipal/Domestic,  
Industrial, Agricultural or Solid Waste (Class I, II or III)  
Facility Status: Active - Any facility with a continuous or seasonal discharge that is  
under Waste Discharge Requirements.  
NPDES Number: CAS000001 The 1st 2 characters designate the state. The remaining 7  
are assigned by the Regional Board  
Subregion: 2  
Facility Telephone: Not reported  
Facility Contact: Not reported  
Agency Name: GOLDEN GATE BRIDGE  
Agency Address: Not reported  
Agency City,St,Zip: 0  
Agency Contact: Not reported  
Agency Telephone: Not reported  
Agency Type: Not reported  
SIC Code: 0  
SIC Code 2: Not reported  
Primary Waste: Not reported  
Primary Waste Type: Not reported  
Secondary Waste: Not reported  
Secondary Waste Type: Not reported  
Design Flow: 0

Map ID  
 Direction  
 Distance  
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
 EPA ID Number

**GOLDEN GATE FERRY (Continued)**

**S100179340**

Baseline Flow: 0  
 Reclamation: Not reported  
 POTW: Not reported  
 Treat To Water: Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.  
 Complexity: Category C - Facilities having no waste treatment systems, such as cooling water dischargers or those who must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.

**A4**  
**South**  
**1/8-1/4**  
**0.136 mi.**  
**718 ft.**

**CANOE TRIPS WEST**  
**2170 REDWOOD HWY**  
**GREENBRAE, CA 94904**  
**Site 1 of 2 in cluster A**

**HIST UST U001600031**  
**N/A**

**Relative:**  
**Lower**

HIST UST:  
 Region: STATE  
 Facility ID: 00000015992  
 Facility Type: Other  
 Other Type: IN-HOUSE FUELING  
 Total Tanks: 0001  
 Contact Name: L.G. BREMIER  
 Telephone: 4154619300  
 Owner Name: L.G. BREMIER, INC.  
 Owner Address: 20 CORTE MORADA  
 Owner City,St,Zip: GREENBRAE, CA 94904

**Actual:**  
**11 ft.**

Tank Num: 001  
 Container Num: 1  
 Year Installed: Not reported  
 Tank Capacity: 00002000  
 Tank Used for: PRODUCT  
 Type of Fuel: REGULAR  
 Tank Construction: 3/16 inches  
 Leak Detection: Stock Inventor, Pressure Test

**A5**  
**South**  
**1/8-1/4**  
**0.136 mi.**  
**718 ft.**

**BREMIER PROPERTY**  
**2170 REDWOOD HWY.**  
**GREENBRAE, CA 94904**  
**Site 2 of 2 in cluster A**

**UST U003914454**  
**N/A**

**Relative:**  
**Lower**

UST:  
 Region: MARIN  
 Facility Id: Not reported  
 Certificate Number: Not reported  
 Tank Number: Not reported  
 Tank Status: Not reported  
 Tank Contents: Not reported

**Actual:**  
**11 ft.**

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**BREMIER PROPERTY (Continued)**

U003914454

Last Inspected: Not reported  
Active: Not reported  
Program: UST  
Location: Not reported  
Pulled Date: Not reported  
Reason: Not reported

6  
East  
1/8-1/4  
0.219 mi.  
1155 ft.

**GOLDEN GATE FERRY**  
**101 EAST SIR FRANCIS DRAKE BLVD.**  
**LARKSPUR, CA 94939**

AST A100226036  
N/A

Relative:  
Lower

AST:  
Owner: GOLDEN GATE BRIDGE  
Total Gallons: 300000

Actual:  
21 ft.

7  
SSE  
1/4-1/2  
0.315 mi.  
1663 ft.

**CENTRAL MARIN**  
**CORTE MADERA**  
**CORTE MADERA, CA**

SWF/LF S103440970  
N/A

Relative:  
Lower

SWF/LF:  
Region: STATE  
Facility ID: 21-CR-0020  
Lat/Long: 37.940000 / -122.511670  
Owner Name: Not reported  
Owner Telephone: Not reported  
Owner Address: Not reported  
Owner Address2: Not reported  
Owner City,St,Zip: Not reported  
Operator: Not reported  
Operator Phone: Not reported  
Operator Address: Not reported  
Operator Address2: Not reported  
Operator City,St,Zip: Not reported  
Operator's Status: Closed  
Permit Date: Not reported  
Permit Status: Not reported  
Permitted Acreage: 0.00  
Activity: Solid Waste Disposal Site  
Regulation Status: To Be Determined  
Landuse Name: Not reported  
GIS Source: Map  
Category: Disposal  
Unit Number: 01  
Inspection Frequency: None  
Accepted Waste: Not reported  
Closure Date: / /  
Closure Type: Not reported  
Disposal Acreage: \$0.00  
Swisnumber: 21-CR-0020  
Issue & Observations: Not reported  
Program Type: Not reported  
Permitted Throughput with Units: 0

Actual:  
15 ft.

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**CENTRAL MARIN (Continued)**

**S103440970**

Actual Throughput with Units: Not reported  
Permitted Capacity with Units: 0  
Remaining Capacity: 0  
Remaining Capacity with Units: Not reported

**8**  
**WNW**  
**1/4-1/2**  
**0.323 mi.**  
**1708 ft.**

**CHEVRON**  
**301 SIR FRANCIS DRAKE BLVD**  
**GREENBRAE, CA 94904**

**HAZNET** **S103650926**  
**LUST** **N/A**  
**Cortese**  
**SWEEPS UST**

**Relative:**  
**Lower**

**HAZNET:**

**Actual:**  
**26 ft.**

Gepaid: CAL000029888  
Contact: CHERVON PRODUCTS CO  
Telephone: 9258425931  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: PO BOX 6004  
Mailing City,St,Zip: SAN RAMON, CA 945830000  
Gen County: Marin  
TSD EPA ID: CAD009452657  
TSD County: San Mateo  
Waste Category: Hydrocarbon solvents (benzene, hexane, Stoddard, etc.)  
Disposal Method: Recycler  
Tons: .5004  
Facility County: Marin

Gepaid: CAR000125179  
Contact: Kathy Norris  
Telephone: 9258425931  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: PO BOX 6004  
Mailing City,St,Zip: San Ramon, CA 94583  
Gen County: Marin  
TSD EPA ID: CAD009452657  
TSD County: San Mateo  
Waste Category: Aqueous solution with less than 10% total organic residues  
Disposal Method: Recycler  
Tons: 0.15  
Facility County: Not reported

Gepaid: CAL000029888  
Contact: CHERVON PRODUCTS CO  
Telephone: 9258425931  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: PO BOX 6004  
Mailing City,St,Zip: SAN RAMON, CA 945830000  
Gen County: Marin  
TSD EPA ID: CAD009452657  
TSD County: San Mateo  
Waste Category: Unspecified organic liquid mixture  
Disposal Method: Recycler  
Tons: .3544  
Facility County: Marin

Gepaid: CAL000029888

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**CHEVRON (Continued)**

**S103650926**

Contact: CHERVON PRODUCTS CO  
Telephone: 9258425931  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: PO BOX 6004  
Mailing City,St,Zip: SAN RAMON, CA 945830000  
Gen County: Marin  
TSD EPA ID: CAT000613893  
TSD County: Los Angeles  
Waste Category: Organic liquids (nonsolvents) with halogens  
Disposal Method: Not reported  
Tons: .1245  
Facility County: Marin

Gepaid: CAL000029888  
Contact: CHERVON PRODUCTS CO  
Telephone: 9258425931  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: PO BOX 6004  
Mailing City,St,Zip: SAN RAMON, CA 945830000  
Gen County: Marin  
TSD EPA ID: CAT000613893  
TSD County: Los Angeles  
Waste Category: Organic liquids (nonsolvents) with halogens  
Disposal Method: Transfer Station  
Tons: .4980  
Facility County: Marin

[Click this hyperlink](#) while viewing on your computer to access 19 additional CA\_HAZNET: record(s) in the EDR Site Report.

**LUST:**

Region: STATE  
Case Type: Other ground water affected  
Cross Street: Not reported  
Enf Type: F  
Funding: CLOS  
How Discovered: Tank Closure  
How Stopped: Not reported  
Leak Cause: UNK  
Leak Source: UNK  
Global Id: T0604100024  
Stop Date: 1994-04-22 00:00:00  
Confirm Leak: 1994-12-07 00:00:00  
Workplan: 2000-10-04 00:00:00  
Prelim Assess: 2001-09-15 00:00:00  
Pollution Char: 2004-06-25 00:00:00  
Remed Plan: Not reported  
Remed Action: Not reported  
Monitoring: Not reported  
Close Date: 2006-03-23 00:00:00  
Discover Date: 1986-04-25 00:00:00  
Enforcement Dt: 2000-10-05 00:00:00  
Release Date: 1986-04-25 00:00:00  
Review Date: 2001-03-26 00:00:00  
Enter Date: 1994-06-17 00:00:00

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**CHEVRON (Continued)**

**S103650926**

MTBE Date: 2004-07-16 00:00:00  
GW Qualifier: =  
Soil Qualifier: Not reported  
Max MTBE GW ppb: 56  
Max MTBE Soil ppb: Not reported  
County: 21  
Org Name: Not reported  
Reg Board: San Francisco Bay Region  
Status: Case Closed  
Chemical: Gasoline  
Contact Person: Not reported  
Responsible Party: CHEVRON PRODUCTS COMPANY  
RP Address: Not reported  
Interim: Yes  
Oversight Prgm: LUST  
MTBE Class: Not reported  
MTBE Conc: 5  
MTBE Fuel: 1  
MTBE Tested: MTBE Detected. Site tested for MTBE and MTBE detected  
Staff: JMJ  
Staff Initials: UNK  
Lead Agency: Regional Board  
Local Agency: 21000  
Hydr Basin #: UNNAMED BASIN  
Beneficial: Not reported  
Priority: Not reported  
Cleanup Fund Id: Not reported  
Work Suspended: No  
Local Case #: 21-0025  
Case Number: 21-0025  
Qty Leaked: Not reported  
Abate Method: Excavate and Dispose - remove contaminated soil and dispose in approved site, Pump and Treat Ground Water - generally employed to remove dissolved contaminants  
  
Operator: STEPHANIE FURGAL  
Water System Name: Not reported  
Well Name: Not reported  
Distance To Lust: 0  
Waste Discharge Global ID: Not reported  
Waste Disch Assigned Name: Not reported  
Summary: Closed Case - DataSafe Concord #30483. MAXSL-GW TPH-G. AB 681 SITE OWNER IS LISTED IN CHEVRON LTR DATED 2/16/2000.

**LUST:**

Region: 2  
Facility Status: Preliminary site assessment workplan submitted  
Facility Id: 21-0025  
Case Number: 21-0025  
How Discovered: Tank Closure  
Leak Cause: UNK  
Leak Source: UNK  
Date Leak Confirmed: 12/7/1994  
Oversight Program: LUST  
Prelim. Site Assesment Wokplan Submitted: 10/4/2000  
Preliminary Site Assesment Began: Not reported  
Pollution Characterization Began: Not reported  
Pollution Remediation Plan Submitted: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**CHEVRON (Continued)**

**S103650926**

Date Remediation Action Underway: Not reported  
Date Post Remedial Action Monitoring Began: Not reported

Cortese:  
Region: CORTESE  
Facility Addr2: 301 SIR FRANCIS DRAKE BLVD

**SWEEPS UST:**

Status: Not reported  
Comp Number: 63160  
Number: Not reported  
Board Of Equalization: 44-031913  
Ref Date: Not reported  
Act Date: Not reported  
Created Date: Not reported  
Tank Status: Not reported  
Owner Tank Id: Not reported  
Swrcb Tank Id: 21-000-063160-000001  
Actv Date: Not reported  
Capacity: 10000  
Tank Use: M.V. FUEL  
Stg: PRODUCT  
Content: PRM UNLEADED  
Number Of Tanks: 5

Status: Not reported  
Comp Number: 63160  
Number: Not reported  
Board Of Equalization: 44-031913  
Ref Date: Not reported  
Act Date: Not reported  
Created Date: Not reported  
Tank Status: Not reported  
Owner Tank Id: Not reported  
Swrcb Tank Id: 21-000-063160-000002  
Actv Date: Not reported  
Capacity: 10000  
Tank Use: M.V. FUEL  
Stg: PRODUCT  
Content: DIESEL  
Number Of Tanks: Not reported

Status: Not reported  
Comp Number: 63160  
Number: Not reported  
Board Of Equalization: 44-031913  
Ref Date: Not reported  
Act Date: Not reported  
Created Date: Not reported  
Tank Status: Not reported  
Owner Tank Id: Not reported  
Swrcb Tank Id: 21-000-063160-000003  
Actv Date: Not reported  
Capacity: 10000  
Tank Use: M.V. FUEL  
Stg: PRODUCT

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**CHEVRON (Continued)**

**S103650926**

Content: MID GRADE UN  
Number Of Tanks: Not reported

Status: Not reported  
Comp Number: 63160  
Number: Not reported  
Board Of Equalization: 44-031913  
Ref Date: Not reported  
Act Date: Not reported  
Created Date: Not reported  
Tank Status: Not reported  
Owner Tank Id: Not reported  
Swrcb Tank Id: 21-000-063160-000004  
Actv Date: Not reported  
Capacity: 10000  
Tank Use: M.V. FUEL  
Stg: PRODUCT  
Content: REG UNLEADED  
Number Of Tanks: Not reported

Status: Not reported  
Comp Number: 63160  
Number: Not reported  
Board Of Equalization: 44-031913  
Ref Date: Not reported  
Act Date: Not reported  
Created Date: Not reported  
Tank Status: Not reported  
Owner Tank Id: Not reported  
Swrcb Tank Id: 21-000-063160-000005  
Actv Date: Not reported  
Capacity: 1000  
Tank Use: OIL  
Stg: WASTE  
Content: WASTE OIL  
Number Of Tanks: Not reported

Status: A  
Comp Number: 63160  
Number: 1  
Board Of Equalization: 44-031913  
Ref Date: 01-17-94  
Act Date: 04-11-94  
Created Date: 12-31-88  
Tank Status: A  
Owner Tank Id: UNKNOWN  
Swrcb Tank Id: 21-000-063160-000006  
Actv Date: 01-06-94  
Capacity: 1000  
Tank Use: OIL  
Stg: W  
Content: WASTE OIL  
Number Of Tanks: 5

Status: A  
Comp Number: 63160  
Number: 1

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**CHEVRON (Continued)**

**S103650926**

Board Of Equalization: 44-031913  
Ref Date: 01-17-94  
Act Date: 04-11-94  
Created Date: 12-31-88  
Tank Status: A  
Owner Tank Id: 147161  
Swrcb Tank Id: 21-000-063160-000007  
Actv Date: 01-17-94  
Capacity: 10000  
Tank Use: M.V. FUEL  
Stg: P  
Content: PLUS UNLEADE  
Number Of Tanks: Not reported

Status: A  
Comp Number: 63160  
Number: 1  
Board Of Equalization: 44-031913  
Ref Date: 01-17-94  
Act Date: 04-11-94  
Created Date: 12-31-88  
Tank Status: A  
Owner Tank Id: 147161  
Swrcb Tank Id: 21-000-063160-000008  
Actv Date: 01-17-94  
Capacity: 10000  
Tank Use: M.V. FUEL  
Stg: P  
Content: PRM UNLEADED  
Number Of Tanks: Not reported

Status: A  
Comp Number: 63160  
Number: 1  
Board Of Equalization: 44-031913  
Ref Date: 01-17-94  
Act Date: 04-11-94  
Created Date: 12-31-88  
Tank Status: A  
Owner Tank Id: 147161N  
Swrcb Tank Id: 21-000-063160-000009  
Actv Date: 01-17-94  
Capacity: 1000  
Tank Use: M.V. FUEL  
Stg: P  
Content: REG UNLEADED  
Number Of Tanks: Not reported

Status: A  
Comp Number: 63160  
Number: 1  
Board Of Equalization: 44-031913  
Ref Date: 01-17-94  
Act Date: 04-11-94  
Created Date: 12-31-88  
Tank Status: A  
Owner Tank Id: 147161

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**CHEVRON (Continued)**

**S103650926**

Swrcb Tank Id: 21-000-063160-000010  
Actv Date: 01-17-94  
Capacity: 12000  
Tank Use: M.V. FUEL  
Stg: P  
Content: DIESEL  
Number Of Tanks: Not reported

**9**  
**East**  
**1/4-1/2**  
**0.327 mi.**  
**1726 ft.**

**CORPORATION YARD (TREATMENT PL**  
**2000 LARKSPUR LANDING CIRCLE**  
**LARKSPUR, CA 94939**

**HIST UST** **U001600191**  
**ENVIROSTOR** **N/A**

**Relative:**  
**Lower**

HIST UST:  
Region: STATE  
Facility ID: 00000067139  
Facility Type: Other  
Other Type: PUBLIC AGENCY  
Total Tanks: 0002  
Contact Name: JOHN ANDERSON  
Telephone: 4154611122  
Owner Name: SANITARY DISTRICT NO. 1 OF MAR  
Owner Address: 2000 LARKSPUR LANDING CIRCLE  
Owner City,St,Zip: LARKSPUR, CA 94939

**Actual:**  
**20 ft.**

Tank Num: 001  
Container Num: 2  
Year Installed: 1979  
Tank Capacity: 00001000  
Tank Used for: WASTE  
Type of Fuel: 1  
Tank Construction: Unkown inches  
Leak Detection: None

Tank Num: 002  
Container Num: 1  
Year Installed: 1971  
Tank Capacity: 00000500  
Tank Used for: PRODUCT  
Type of Fuel: REGULAR  
Tank Construction: Not reported  
Leak Detection: None

**ENVIROSTOR:**

Site Type: Evaluation  
Site Type Detailed: Evaluation  
Acres: 10.67  
NPL: NO  
Regulatory Agencies: SMBRP  
Lead Agency: NONE SPECIFIED  
Program Manager: CLAUDE JEMISON  
Supervisor: Karen Toth  
Division Branch: North Coast  
Facility ID: 60000693  
Site Code: Not reported  
Assembly: 06

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**CORPORATION YARD (TREATMENT PL (Continued))**

**U001600191**

Senate: 03  
Special Program: Not reported  
Status: No Further Action  
Status Date: 2006-10-20 00:00:00  
Restricted Use: NO  
Funding: Responsible Party  
Latitude: 37.94785  
Longitude: -122.50832  
Alias Name: 60000693  
Alias Type: Envirostor ID Number

APN: NONE SPECIFIED  
APN Description: Not reported  
Comments: DTSC determines that no further action is necessary with respect to investigation and remediation of hazardous substances at the property. Report was part of a submittal for a CEQA review. The results from the removal of contaminated soil. "Letter requested clarification on specific samples and sampling methods utilized for the sampling event, that confirmation samples for arsenic should be conducted and cleanup criteria for PCB should meet residential level." Groundwater is significantly free of mercury contamination. DTSC determines that no further action is necessary with respect to investigation and remediation of hazardous substances at the property.

Completed Info:

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Other Report  
Completed Date: 05/02/06

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Preliminary Endangerment Assessment Report  
Completed Date: 10/20/06

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Other Report  
Completed Date: 11/18/04

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Other Report  
Completed Date: 06/23/04

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Correspondence - Received  
Completed Date: 11/18/04

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Other Report  
Completed Date: 01/05/01

Confirmed: 30018  
Confirmed Description: Polychlorinated biphenyls (PCBs)  
Future Area Name: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**CORPORATION YARD (TREATMENT PL (Continued))**

**U001600191**

Future Sub Area Name: Not reported  
Future Document Type: Not reported  
Future Due Date: Not reported  
Media Affected: SOIL  
Media Affected Desc: Soil

Management:

Management Required: NONE SPECIFIED  
Management Required Desc: Not reported  
Potential: 30018  
Potential Description: Polychlorinated biphenyls (PCBs)  
Schedule Area Name: Not reported  
Schedule Sub Area Name: Not reported  
Schedule Document Type: Not reported  
Schedule Due Date: Not reported  
Schedule Revised Date: Not reported  
PastUse: UNKNOWN

**10**  
**SSW**  
**1/4-1/2**  
**0.329 mi.**  
**1738 ft.**

**SUPER 7**  
**2070 OLD REDWOOD HWY**  
**LARKSPUR, CA 94939**

**LUST** **S102438234**  
**Cortese** **N/A**

**Relative:**  
**Lower**

LUST:

**Actual:**  
**8 ft.**

Region: STATE  
Case Type: Other ground water affected  
Cross Street: RICH ST  
Enf Type: F  
Funding: VER  
How Discovered: Tank Closure  
How Stopped: Not reported  
Leak Cause: UNK  
Leak Source: UNK  
Global Id: T0604100129  
Stop Date: 1993-10-20 00:00:00  
Confirm Leak: Not reported  
Workplan: Not reported  
Prelim Assess: 1986-05-09 00:00:00  
Pollution Char: Not reported  
Remed Plan: Not reported  
Remed Action: Not reported  
Monitoring: Not reported  
Close Date: 1996-04-26 00:00:00  
Discover Date: 1986-06-09 00:00:00  
Enforcement Dt: Not reported  
Release Date: 1986-06-09 00:00:00  
Review Date: 1996-04-26 00:00:00  
Enter Date: 1986-06-09 00:00:00  
MTBE Date: Not reported  
GW Qualifier: Not reported  
Soil Qualifier: Not reported  
Max MTBE GW ppb: Not reported  
Max MTBE Soil ppb: Not reported  
County: 21  
Org Name: Not reported  
Reg Board: San Francisco Bay Region  
Status: Case Closed

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SUPER 7 (Continued)**

**S102438234**

Chemical: Gasoline  
Contact Person: Not reported  
Responsible Party: BLANK RP  
RP Address: Not reported  
Interim: Yes  
Oversight Prgm: LUST  
MTBE Class: \*  
MTBE Conc: 0  
MTBE Fuel: 1  
MTBE Tested: Site NOT Tested for MTBE.Includes Unknown and Not Analyzed.  
Staff: JMJ  
Staff Initials: UNK  
Lead Agency: Regional Board  
Local Agency: 21000  
Hydr Basin #: UNNAMED BASIN  
Beneficial: Not reported  
Priority: Not reported  
Cleanup Fund Id: Not reported  
Work Suspended: No  
Local Case #: 21-0136  
Case Number: 21-0136  
Qty Leaked: Not reported  
Abate Method: Excavate and Dispose - remove contaminated soil and dispose in approved site  
Operator: Not reported  
Water System Name: Not reported  
Well Name: Not reported  
Distance To Lust: 0  
Waste Discharge Global ID: Not reported  
Waste Disch Assigned Name: Not reported  
Summary: ARCHIVED 11/1/96 CONTROL NO 120-110 SRC 0904760

**LUST:**

Region: 2  
Facility Status: Case Closed  
Facility Id: 21-0136  
Case Number: 21-0136  
How Discovered: Tank Closure  
Leak Cause: UNK  
Leak Source: UNK  
Date Leak Confirmed: Not reported  
Oversight Program: LUST  
Prelim. Site Assesment Wokplan Submitted: Not reported  
Preliminary Site Assesment Began: 5/9/1986  
Pollution Characterization Began: Not reported  
Pollution Remediation Plan Submitted: Not reported  
Date Remediation Action Underway: Not reported  
Date Post Remedial Action Monitoring Began: Not reported

**Cortese:**

Region: CORTESE  
Facility Addr2: 2070 OLD REDWOOD HWY

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**B11**      **MARIN SANITARY SERVICE**  
**ENE**      **525 JACOBY ST**  
**1/4-1/2**    **SAN RAFAEL, CA 94901**  
**0.343 mi.**  
**1810 ft.**    **Site 1 of 2 in cluster B**

**HAZNET**    **S102432994**  
**LUST**      **N/A**  
**Cortese**

**Relative:**  
**Higher**

HAZNET:  
Gepaid:            CAD009469701  
Contact:           ED NAVE  
Telephone:        4154547011  
Facility Addr2:   Not reported  
Mailing Name:     Not reported  
Mailing Address:  525 JACOBY ST  
Mailing City,St,Zip: SAN RAFAEL, CA 949015347  
Gen County:       Marin  
TSD EPA ID:       Not reported  
TSD County:       Santa Clara  
Waste Category:  Unspecified oil-containing waste  
Disposal Method: Transfer Station  
Tons:              0.25  
Facility County:  Not reported

**Actual:**  
**42 ft.**

Gepaid:            CAD009469701  
Contact:           ED NAVE  
Telephone:        4154547011  
Facility Addr2:   Not reported  
Mailing Name:     Not reported  
Mailing Address:  525 JACOBY ST  
Mailing City,St,Zip: SAN RAFAEL, CA 949015347  
Gen County:       Marin  
TSD EPA ID:       Not reported  
TSD County:       99  
Waste Category:  Not reported  
Disposal Method: Disposal, Land Fill  
Tons:              1.40  
Facility County:  Not reported

Gepaid:            CAD009469701  
Contact:           ED NAVE  
Telephone:        4154547011  
Facility Addr2:   Not reported  
Mailing Name:     Not reported  
Mailing Address:  525 JACOBY ST  
Mailing City,St,Zip: SAN RAFAEL, CA 949015347  
Gen County:       Marin  
TSD EPA ID:       Not reported  
TSD County:       99  
Waste Category:  Off-specification, aged, or surplus organics  
Disposal Method: Disposal, Land Fill  
Tons:              5.42  
Facility County:  Not reported

Gepaid:            CAD009469701  
Contact:           ED NAVE  
Telephone:        4154547011  
Facility Addr2:   Not reported  
Mailing Name:     Not reported  
Mailing Address:  525 JACOBY ST  
Mailing City,St,Zip: SAN RAFAEL, CA 949015347

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MARIN SANITARY SERVICE (Continued)**

**S102432994**

Gen County: Marin  
TSD EPA ID: Not reported  
TSD County: 99  
Waste Category: Off-specification, aged, or surplus organics  
Disposal Method: Recycler  
Tons: 1.55  
Facility County: Not reported

Gepaid: CAD009469701  
Contact: ED NAVE  
Telephone: 4154547011  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 525 JACOBY ST  
Mailing City,St,Zip: SAN RAFAEL, CA 949015347  
Gen County: Marin  
TSD EPA ID: Not reported  
TSD County: 99  
Waste Category: Off-specification, aged, or surplus organics  
Disposal Method: Treatment, Incineration  
Tons: 0.05  
Facility County: Not reported

[Click this hyperlink](#) while viewing on your computer to access  
4 additional CA\_HAZNET: record(s) in the EDR Site Report.

**LUST:**

Region: STATE  
Case Type: Soil only  
Cross Street: Not reported  
Enf Type: F  
Funding: Not reported  
How Discovered: Tank Closure  
How Stopped: Not reported  
Leak Cause: Structure Failure  
Leak Source: Tank  
Global Id: T0604100053  
Stop Date: 1984-08-02 00:00:00  
Confirm Leak: 1996-01-31 00:00:00  
Workplan: Not reported  
Prelim Assess: Not reported  
Pollution Char: Not reported  
Remed Plan: Not reported  
Remed Action: Not reported  
Monitoring: Not reported  
Close Date: Not reported  
Discover Date: 1984-08-02 00:00:00  
Enforcement Dt: Not reported  
Release Date: 1984-08-02 00:00:00  
Review Date: 1996-01-31 00:00:00  
Enter Date: 1984-08-02 00:00:00  
MTBE Date: Not reported  
GW Qualifier: Not reported  
Soil Qualifier: Not reported  
Max MTBE GW ppb: Not reported  
Max MTBE Soil ppb: Not reported  
County: 21

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MARIN SANITARY SERVICE (Continued)**

**S102432994**

Org Name: Not reported  
Reg Board: San Francisco Bay Region  
Status: Leak being confirmed  
Chemical: Waste Oil  
Contact Person: Not reported  
Responsible Party: BLANK RP  
RP Address: Not reported  
Interim: No  
Oversight Prgm: LUST  
MTBE Class: \*  
MTBE Conc: 0  
MTBE Fuel: 0  
MTBE Tested: Not Required to be Tested.  
Staff: REL  
Staff Initials: BM  
Lead Agency: Regional Board  
Local Agency: 21028  
Hydr Basin #: San Rafael Valley (2)  
Beneficial: Not reported  
Priority: Not reported  
Cleanup Fund Id: Not reported  
Work Suspended: No  
Local Case #: 21-0055  
Case Number: 21-0055  
Qty Leaked: Not reported  
Abate Method: No Action Taken - no action has as yet been taken at the site  
Operator: Not reported  
Water System Name: Not reported  
Well Name: Not reported  
Distance To Lust: 0  
Waste Discharge Global ID: Not reported  
Waste Disch Assigned Name: Not reported  
Summary: MAXSOIL TPH-G

**LUST:**

Region: 2  
Facility Status: Leak being confirmed  
Facility Id: 21-0055  
Case Number: 21-0055  
How Discovered: Tank Closure  
Leak Cause: Structure Failure  
Leak Source: Tank  
Date Leak Confirmed: 1/31/1996  
Oversight Program: LUST  
Prelim. Site Assesment Wokplan Submitted: Not reported  
Preliminary Site Assesment Began: Not reported  
Pollution Characterization Began: Not reported  
Pollution Remediation Plan Submitted: Not reported  
Date Remediation Action Underway: Not reported  
Date Post Remedial Action Monitoring Began: Not reported

**Cortese:**

Region: CORTESE  
Facility Addr2: 525 JACOBY ST

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**B12**      **MARIN RECYCLING AND RESOURCE RECOVERY ASSOCIATION**  
**ENE**      **535 JACOBY ST**  
**1/4-1/2**    **SAN RAFAEL, CA 94901**  
**0.349 mi.**  
**1844 ft.**    **Site 2 of 2 in cluster B**

**SWRCY**    **S107137288**  
**N/A**

**Relative:**      SWRCY:  
**Higher**      Certification Status:      O  
                 Facility Phone Number:      (415) 453-1404  
**Actual:**      Date facility became certified:      09/24/87  
**42 ft.**      Date facility began operating:      11/13/78  
                 Date facility ceased operating:      Still operating  
                 Whether The Facility Is Grandfathered:      Not reported  
                 Convenience Zone Where Facility Located:      1223  
                 Convenience Zone Where Facility Located 2:      6017  
                 Convenience Zone Where Facility Located 3:      0  
                 Convenience Zone Where Facility Located 4:      0  
                 Convenience Zone Where Facility Located 5:      0  
                 Convenience Zone Where Facility Located 6:      0  
                 Convenience Zone Where Facility Located 7:      0  
                 Aluminum Beverage Containers Redeemed:      AL  
                 Glass Beverage Containers Redeemed:      GL  
                 Plastic Beverage Containers Redeemed:      PL  
                 Other mat beverage containers redeemed:      OB  
                 Refillable Beverage Containers Redeemed:      Not reported

**13**      **ALLEN HEATING & SHEET METAL**  
**South**    **36 INDUSTRIAL WY**  
**1/4-1/2**    **GREENBRAE, CA 94904**  
**0.365 mi.**  
**1926 ft.**

**LUST**      **S104162589**  
**Cortese**    **N/A**

**Relative:**      LUST:  
**Lower**      Region:      STATE  
                 Case Type:      Other ground water affected  
**Actual:**      Cross Street:      REDWOOD HWY  
**20 ft.**      Enf Type:      F  
                 Funding:      Not reported  
                 How Discovered:      OM  
                 How Stopped:      Not reported  
                 Leak Cause:      Structure Failure  
                 Leak Source:      Tank  
                 Global Id:      T0604100026  
                 Stop Date:      1988-05-10 00:00:00  
                 Confirm Leak:      1996-01-10 00:00:00  
                 Workplan:      Not reported  
                 Prelim Assess:      1997-12-16 00:00:00  
                 Pollution Char:      Not reported  
                 Remed Plan:      Not reported  
                 Remed Action:      Not reported  
                 Monitoring:      Not reported  
                 Close Date:      1998-12-24 00:00:00  
                 Discover Date:      1988-05-02 00:00:00  
                 Enforcement Dt:      Not reported  
                 Release Date:      1988-09-19 00:00:00  
                 Review Date:      1998-12-23 00:00:00  
                 Enter Date:      1993-09-07 00:00:00  
                 MTBE Date:      1965-01-02 00:00:00  
                 GW Qualifier:      Not reported  
                 Soil Qualifier:      Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**ALLEN HEATING & SHEET METAL (Continued)**

**S104162589**

Max MTBE GW ppb: 110  
Max MTBE Soil ppb: Not reported  
County: 21  
Org Name: Not reported  
Reg Board: San Francisco Bay Region  
Status: Case Closed  
Chemical: Regular Gasoline  
Contact Person: Not reported  
Responsible Party: BLANK RP  
RP Address: Not reported  
Interim: Yes  
Oversight Prgm: LUST  
MTBE Class: Not reported  
MTBE Conc: 1  
MTBE Fuel: 1  
MTBE Tested: MTBE Detected. Site tested for MTBE and MTBE detected  
Staff: JMJ  
Staff Initials: UNK  
Lead Agency: Regional Board  
Local Agency: 21000  
Hydr Basin #: Ross Valley (2-28)  
Beneficial: Not reported  
Priority: Not reported  
Cleanup Fund Id: Not reported  
Work Suspended: No  
Local Case #: 210027  
Case Number: 21-0027  
Qty Leaked: Not reported  
Abate Method: Excavate and Treat - remove contaminated soil and treat (includes spreading or land farming)  
Operator: Not reported  
Water System Name: Not reported  
Well Name: Not reported  
Distance To Lust: 0  
Waste Discharge Global ID: Not reported  
Waste Disch Assigned Name: Not reported  
Summary: ARCHIVED 12/5/00 CONTROL NO 312-002 SRC 1085464

**LUST:**

Region: 2  
Facility Status: Case Closed  
Facility Id: 21-0027  
Case Number: 210027  
How Discovered: OM  
Leak Cause: Structure Failure  
Leak Source: Tank  
Date Leak Confirmed: 1/10/1996  
Oversight Program: LUST  
Prelim. Site Assesment Wokplan Submitted: Not reported  
Preliminary Site Assesment Began: 12/16/1997  
Pollution Characterization Began: Not reported  
Pollution Remediation Plan Submitted: Not reported  
Date Remediation Action Underway: Not reported  
Date Post Remedial Action Monitoring Began: Not reported

Cortese:

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**ALLEN HEATING & SHEET METAL (Continued)**

**S104162589**

Region: CORTESE  
Facility Addr2: Not reported

**C14**  
**South**  
**1/4-1/2**  
**0.380 mi.**  
**2007 ft.**

**MARIN CAR WASH**  
**2066 REDWOOD HWY**  
**LARKSPUR, CA 94939**  
**Site 1 of 3 in cluster C**

**HAZNET** **S100599113**  
**LUST** **N/A**  
**Cortese**

**Relative:**  
**Lower**

HAZNET:  
Gepaid: CAP000000066  
Contact: Not reported  
Telephone: 0000000000  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 584 REDWOOD HIGHWAY  
Mailing City,St,Zip: MILL VALLEY, CA 949410000  
Gen County: Marin  
TSD EPA ID: WAD000812909  
TSD County: 99  
Waste Category: Other organic solids  
Disposal Method: Not reported  
Tons: .9000  
Facility County: Marin

**Actual:**  
**29 ft.**

Gepaid: CAP000000066  
Contact: Not reported  
Telephone: 0000000000  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 584 REDWOOD HIGHWAY  
Mailing City,St,Zip: MILL VALLEY, CA 949410000  
Gen County: Marin  
TSD EPA ID: CAD083166728  
TSD County: Stanislaus  
Waste Category: Unspecified oil-containing waste  
Disposal Method: Recycler  
Tons: 83.4000  
Facility County: Marin

Gepaid: CAP000000066  
Contact: Not reported  
Telephone: 0000000000  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 584 REDWOOD HIGHWAY  
Mailing City,St,Zip: MILL VALLEY, CA 949410000  
Gen County: Marin  
TSD EPA ID: CAD083166728  
TSD County: Stanislaus  
Waste Category: Unspecified oil-containing waste  
Disposal Method: Not reported  
Tons: 20.8500  
Facility County: Marin

LUST:  
Region: STATE

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MARIN CAR WASH (Continued)**

**S100599113**

Case Type: Other ground water affected  
Cross Street: INDUSTRIAL WY  
Enf Type: Not reported  
Funding: VER  
How Discovered: Subsurface Monitoring  
How Stopped: Not reported  
Leak Cause: UNK  
Leak Source: UNK  
Global Id: T0604100285  
Stop Date: 1994-12-30 00:00:00  
Confirm Leak: 1995-11-21 00:00:00  
Workplan: Not reported  
Prelim Assess: 1996-09-09 00:00:00  
Pollution Char: Not reported  
Remed Plan: Not reported  
Remed Action: Not reported  
Monitoring: Not reported  
Close Date: Not reported  
Discover Date: 1994-12-30 00:00:00  
Enforcement Dt: Not reported  
Release Date: 1995-09-09 00:00:00  
Review Date: 1999-01-06 00:00:00  
Enter Date: 1995-02-01 00:00:00  
MTBE Date: 1965-01-02 00:00:00  
GW Qualifier: Not reported  
Soil Qualifier: Not reported  
Max MTBE GW ppb: 61000  
Max MTBE Soil ppb: Not reported  
County: 21  
Org Name: Not reported  
Reg Board: San Francisco Bay Region  
Status: Preliminary site assessment underway  
Chemical: Gasoline  
Contact Person: Not reported  
Responsible Party: BLANK RP  
RP Address: Not reported  
Interim: No  
Oversight Prgm: LUST  
MTBE Class: B  
MTBE Conc: 1  
MTBE Fuel: 1  
MTBE Tested: MTBE Detected. Site tested for MTBE and MTBE detected  
Staff: JMJ  
Staff Initials: UNK  
Lead Agency: Regional Board  
Local Agency: 21000  
Hydr Basin #: Ross Valley (2-28)  
Beneficial: Not reported  
Priority: Not reported  
Cleanup Fund Id: Not reported  
Work Suspended: No  
Local Case #: 21-0303  
Case Number: 21-0303  
Qty Leaked: Not reported  
Abate Method: No Action Taken - no action has as yet been taken at the site  
Operator: Not reported  
Water System Name: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MARIN CAR WASH (Continued)**

**S100599113**

Well Name: Not reported  
Distance To Lust: 0  
Waste Discharge Global ID: Not reported  
Waste Disch Assigned Name: Not reported  
Summary: Not reported

**LUST:**

Region: 2  
Facility Status: Preliminary site assessment underway  
Facility Id: 21-0303  
Case Number: 21-0303  
How Discovered: Subsurface Monitoring  
Leak Cause: UNK  
Leak Source: UNK  
Date Leak Confirmed: 11/21/1995  
Oversight Program: LUST  
Prelim. Site Assessment Workplan Submitted: Not reported  
Preliminary Site Assessment Began: 9/9/1996  
Pollution Characterization Began: Not reported  
Pollution Remediation Plan Submitted: Not reported  
Date Remediation Action Underway: Not reported  
Date Post Remedial Action Monitoring Began: Not reported

**Cortese:**

Region: CORTESE  
Facility Addr2: 2066 REDWOOD HWY

**C15**  
**South**  
**1/4-1/2**  
**0.380 mi.**  
**2007 ft.**  
**CHEVRON #20-4419**  
**2066 REDWOOD HIGHWAY**  
**LARKSPUR, CA**  
**Site 2 of 3 in cluster C**

**LUST** **U003783624**  
**Cortese** **N/A**  
**UST**  
**SWEEPS UST**

**Relative:**  
**Lower**

**LUST:**

**Actual:**  
**29 ft.**

Region: 3  
Regional Board: Central Coast Region  
Release Date: 12/20/1996  
Enter Date: 01/13/1997  
Case Number: 2799  
Responsible Party: CURTIS STANLEY  
RP Address: 3333 HIGHWAY 6 SOUTH  
Contact: Not reported  
Cross Street: HWY 101  
Local Agency: 40000  
Substance: Gasoline  
Discovered Date: 12/3/96  
How Discovered: OM  
Stop Date: 12/3/96  
How Stopped: Not reported  
Leak Source: UNK  
Leak Cause: UNK  
Lead Agency: Regional Board  
Case Type: A  
Status: Pollution Characterization  
Staff Initials: CMW  
Review Date: 07/30/2002  
Confirm Leak: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**CHEVRON #20-4419 (Continued)**

**U003783624**

Workplan: Not reported  
Prelim Assess: 9/1/98  
Pollution Char: 04/25/2002  
Remedial Plan: Not reported  
Remedial Action: Not reported  
Monitoring: / /  
Enforcement Type: LET  
Enforce Date: Not reported  
Close Date: Not reported  
Pilot Program: UST  
Interim Action: Not reported  
Funding: Not reported  
MTBE Class: C  
Max MTBE Grnd Wtr: 330  
Max MTBE Soil: Not reported  
Max MTBE Data: 11/14/2001  
MTBE Tested: YES  
Lat/Long: 35.26452713 / -120.6764012  
Soil Qualifier: Not reported  
Grnd Wtr Qualifier: =  
Mtbe Concentratn: 18  
Mtbe Fuel: 1  
Org Name: Not reported  
Facility County: San Luis Obispo  
Global ID: T0607900084  
Basin Plan: 10.24  
Beneficial: MUN  
Priority: Not reported  
UST Cleanup Fund ID: Not reported  
Suspended: Not reported  
Local Case Num: Not reported  
Quantity: Not reported  
Abatement Method: Pump and Treat Ground Water - generally employed to remove dissolved contaminants  
Operator: Not reported  
Water System: Not reported  
Well Name: Not reported  
Distance From Well: 0  
Assigned Name: Not reported  
Summary: STATION REMODEL IN 5/00.

**Cortese:**

Region: CORTESE  
Facility Addr2: 204 MADONNA RD

**UST:**

Region: MARIN  
Facility Id: Not reported  
Certificate Number: Not reported  
Tank Number: Not reported  
Tank Status: Not reported  
Tank Contents: Not reported  
Last Inspected: Not reported  
Active: Not reported  
Program: UST  
Location: Not reported  
Pulled Date: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**CHEVRON #20-4419 (Continued)**

**U003783624**

Reason: Not reported  
  
Region: MARIN  
Facility Id: 60-0099  
Certificate Number: Not reported  
Tank Number: 000001  
Tank Status: Tank Removed  
Tank Contents: Motor vehicle fuel  
Last Inspected: 6/8/1998  
Active: No  
Program: Not reported  
Location: Not reported  
Pulled Date: Not reported  
Reason: Not reported

Region: MARIN  
Facility Id: 60-0099  
Certificate Number: Not reported  
Tank Number: 000002  
Tank Status: Tank Removed  
Tank Contents: Motor vehicle fuel  
Last Inspected: 6/8/1998  
Active: No  
Program: Not reported  
Location: Not reported  
Pulled Date: Not reported  
Reason: Not reported

Region: MARIN  
Facility Id: 60-0099  
Certificate Number: Not reported  
Tank Number: 000003  
Tank Status: Tank Removed  
Tank Contents: Motor vehicle fuel  
Last Inspected: 6/8/1998  
Active: No  
Program: Not reported  
Location: Not reported  
Pulled Date: Not reported  
Reason: Not reported

**SWEEPS UST:**

Status: A  
Comp Number: 9885  
Number: 2  
Board Of Equalization: 44-000074  
Ref Date: 12-14-92  
Act Date: 07-07-93  
Created Date: 02-29-88  
Tank Status: A  
Owner Tank Id: 1  
Swrcb Tank Id: 40-023-009885-000001  
Actv Date: 12-14-92  
Capacity: 550  
Tank Use: OIL  
Stg: W  
Content: WASTE OIL

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**CHEVRON #20-4419 (Continued)**

**U003783624**

Number Of Tanks: 4  
  
Status: A  
Comp Number: 9885  
Number: 2  
Board Of Equalization: 44-000074  
Ref Date: 12-14-92  
Act Date: 07-07-93  
Created Date: 02-29-88  
Tank Status: A  
Owner Tank Id: 2  
Swrcb Tank Id: 40-023-009885-000002  
Actv Date: 12-14-92  
Capacity: 12000  
Tank Use: M.V. FUEL  
Stg: P  
Content: REG UNLEADED  
Number Of Tanks: Not reported

Status: A  
Comp Number: 9885  
Number: 2  
Board Of Equalization: 44-000074  
Ref Date: 12-14-92  
Act Date: 07-07-93  
Created Date: 02-29-88  
Tank Status: A  
Owner Tank Id: 3  
Swrcb Tank Id: 40-023-009885-000003  
Actv Date: 12-14-92  
Capacity: 12000  
Tank Use: M.V. FUEL  
Stg: P  
Content: PRM UNLEADED  
Number Of Tanks: Not reported

Status: A  
Comp Number: 9885  
Number: 2  
Board Of Equalization: 44-000074  
Ref Date: 12-14-92  
Act Date: 07-07-93  
Created Date: 02-29-88  
Tank Status: A  
Owner Tank Id: 4  
Swrcb Tank Id: 40-023-009885-000004  
Actv Date: 12-14-92  
Capacity: 12000  
Tank Use: M.V. FUEL  
Stg: P  
Content: REG UNLEADED  
Number Of Tanks: Not reported

MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Site

Database(s)

EDR ID Number  
 EPA ID Number

**C16**            **LARKSPUR CAR WASH**  
**South**        **2066 REDWOOD HWY**  
**1/4-1/2**       **LARKSPUR, CA 94939**  
**0.380 mi.**  
**2007 ft.**      **Site 3 of 3 in cluster C**

**WMUDS/SWAT**    **U001600194**  
**HIST UST**        **N/A**

**Relative:**  
**Lower**

WMUDS/SWAT:

**Actual:**  
**29 ft.**

Edit Date:	Not reported
Complexity:	Not reported
Primary Waste:	Not reported
Primary Waste Type:	Not reported
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Base Meridian:	Not reported
NPID:	Not reported
Tonnage:	0
Regional Board ID:	Not reported
Municipal Solid Waste:	False
Superorder:	False
Open To Public:	False
Waste List:	False
Agency Type:	Not reported
Agency Name:	Not reported
Agency Department:	Not reported
Agency Address:	Not reported
Agency City,St,Zip:	Not reported
Agency Contact:	Not reported
Agency Telephone:	Not reported
Land Owner Name:	Not reported
Land Owner Address:	Not reported
Land Owner City,St,Zip:	CA
Land Owner Contact:	Not reported
Land Owner Phone:	Not reported
Region:	2
Facility Type:	Not reported
Facility Description:	Not reported
Facility Telephone:	Not reported
SWAT Facility Name:	Not reported
Primary SIC:	Not reported
Secondary SIC:	Not reported
Comments:	Not reported
Last Facility Editors:	Not reported
Waste Discharge System:	False
Solid Waste Assessment Test Program:	True
Toxic Pits Cleanup Act Program:	False
Resource Conservation Recovery Act:	False
Department of Defence:	False
Solid Waste Assessment Test Program:	Not reported
Threat to Water Quality:	Not reported
Sub Chapter 15:	False
Regional Board Project Officer:	UN1
Number of WMUDS at Facility:	1
Section Range:	Not reported
RCRA Facility:	Not reported
Waste Discharge Requirements:	Not reported
Self-Monitoring Rept. Frequency:	Not reported
Waste Discharge System ID:	2 000050880
Solid Waste Information ID:	Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**LARKSPUR CAR WASH (Continued)**

**U001600194**

HIST UST:

Region: STATE  
Facility ID: 00000010126  
Facility Type: Gas Station  
Other Type: Not reported  
Total Tanks: 0003  
Contact Name: TOM HIPPENMEYER  
Telephone: 4153886511  
Owner Name: TOM HIPPENMEYER  
Owner Address: 580 REDWOOD HWY  
Owner City,St,Zip: MILL VALLEY, CA 94941

Tank Num: 001  
Container Num: 1  
Year Installed: 1975  
Tank Capacity: 00010000  
Tank Used for: PRODUCT  
Type of Fuel: UNLEADED  
Tank Construction: 1/4 inches  
Leak Detection: Visual, Stock Inventor

Tank Num: 002  
Container Num: 2  
Year Installed: 1975  
Tank Capacity: 00010000  
Tank Used for: PRODUCT  
Type of Fuel: REGULAR  
Tank Construction: 1/4 inches  
Leak Detection: Visual, Stock Inventor

Tank Num: 003  
Container Num: 3  
Year Installed: 1975  
Tank Capacity: 00010000  
Tank Used for: PRODUCT  
Type of Fuel: PREMIUM  
Tank Construction: 1/4 inches  
Leak Detection: Visual, Stock Inventor

17  
WNW  
1/4-1/2  
0.394 mi.  
2082 ft.

**SHELL**  
**295 SIR FRANCIS DRAKE BLVD**  
**LARKSPUR, CA 94939**

**LUST U003761873**  
**N/A**

**Relative:**  
**Lower**

LUST:

Region: STATE  
Case Type: Other ground water affected  
Cross Street: BARRY WY  
Enf Type: Not reported  
Funding: Not reported  
How Discovered: Tank Closure  
How Stopped: Not reported  
Leak Cause: UNK  
Leak Source: UNK  
Global Id: T0604100219  
Stop Date: 1993-11-04 00:00:00

**Actual:**  
**33 ft.**

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SHELL (Continued)**

**U003761873**

Confirm Leak: 1994-12-15 00:00:00  
Workplan: 1997-08-13 00:00:00  
Prelim Assess: Not reported  
Pollution Char: Not reported  
Remed Plan: Not reported  
Remed Action: Not reported  
Monitoring: Not reported  
Close Date: 1998-02-05 00:00:00  
Discover Date: 1993-11-04 00:00:00  
Enforcement Dt: Not reported  
Release Date: 1993-11-04 00:00:00  
Review Date: 1998-02-04 00:00:00  
Enter Date: 1994-12-28 00:00:00  
MTBE Date: 1965-01-02 00:00:00  
GW Qualifier: Not reported  
Soil Qualifier: Not reported  
Max MTBE GW ppb: 620  
Max MTBE Soil ppb: Not reported  
County: 21  
Org Name: Not reported  
Reg Board: San Francisco Bay Region  
Status: Case Closed  
Chemical: Waste Oil  
Contact Person: Not reported  
Responsible Party: BLANK RP  
RP Address: Not reported  
Interim: Yes  
Oversight Prgm: LUST  
MTBE Class: Not reported  
MTBE Conc: 1  
MTBE Fuel: 0  
MTBE Tested: MTBE Detected. Site tested for MTBE and MTBE detected  
Staff: JMJ  
Staff Initials: UNK  
Lead Agency: Regional Board  
Local Agency: 21000  
Hydr Basin #: UNNAMED BASIN  
Beneficial: Not reported  
Priority: Not reported  
Cleanup Fund Id: Not reported  
Work Suspended: No  
Local Case #: 21-0232  
Case Number: 21-0232  
Qty Leaked: Not reported  
Abate Method: Excavate and Dispose - remove contaminated soil and dispose in approved site  
Operator: Not reported  
Water System Name: Not reported  
Well Name: Not reported  
Distance To Lust: 0  
Waste Discharge Global ID: Not reported  
Waste Disch Assigned Name: Not reported  
Summary: Closed Case - Datasafe Concord #30435. RWQCB CLOSURE LETTER IS DATED 2/5/98.

**LUST:**

Region: 2  
Facility Status: Case Closed

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SHELL (Continued)**

**U003761873**

Facility Id: 21-0232  
Case Number: 21-0232  
How Discovered: Tank Closure  
Leak Cause: UNK  
Leak Source: UNK  
Date Leak Confirmed: 12/15/1994  
Oversight Program: LUST  
Prelim. Site Assessment Workplan Submitted: 8/13/1997  
Preliminary Site Assessment Began: Not reported  
Pollution Characterization Began: Not reported  
Pollution Remediation Plan Submitted: Not reported  
Date Remediation Action Underway: Not reported  
Date Post Remedial Action Monitoring Began: Not reported

18  
NE  
1/4-1/2  
0.435 mi.  
2296 ft.

**MARIN SANITARY SERVICES**  
**1050 ANDERSEN**  
**SAN RAFAEL, CA 92691**

**Notify 65 S100179397**  
**N/A**

**Relative:**  
**Higher**

Notify 65:  
Date Reported: Not reported  
Staff Initials: Not reported  
Board File Number: Not reported  
Facility Type: Not reported  
Discharge Date: Not reported  
Incident Description: 92691

**Actual:**  
**38 ft.**

19  
NE  
1/4-1/2  
0.449 mi.  
2370 ft.

**VIACOM CABLEVISION**  
**1111 ANDERSEN DR**  
**SAN RAFAEL, CA 94901**

**HAZNET S101307478**  
**LUST N/A**  
**Cortese**  
**SWEEPS UST**

**Relative:**  
**Lower**

HAZNET:  
Gepaid: CAL000275184  
Contact: ROSA WHIPPLE  
Telephone: 7606028842  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 1905 ASTON AVE  
Mailing City, St, Zip: CARLSBAD, CA 92008  
Gen County: Marin  
TSD EPA ID: IND000646943  
TSD County: Marin  
Waste Category: Unspecified oil-containing waste  
Disposal Method: Disposal, Land Fill  
Tons: 0.22  
Facility County: Marin

**Actual:**  
**37 ft.**

Gepaid: CAL000275184  
Contact: ROSA WHIPPLE  
Telephone: 7606028842  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 12647 ACCOSTA BLVD

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**VIACOM CABLEVISION (Continued)**

**S101307478**

Mailing City,St,Zip: SAN RAMON, CA 945830000  
Gen County: Marin  
TSD EPA ID: CAD028409019  
TSD County: Los Angeles  
Waste Category: Other organic solids  
Disposal Method: Transfer Station  
Tons: 0.26  
Facility County: Not reported

**LUST:**

Region: STATE  
Case Type: Other ground water affected  
Cross Street: JACOBY ST  
Enf Type: F  
Funding: Not reported  
How Discovered: Tank Closure  
How Stopped: Not reported  
Leak Cause: Structure Failure  
Leak Source: Tank  
Global Id: T0604100170  
Stop Date: 1994-03-24 00:00:00  
Confirm Leak: Not reported  
Workplan: Not reported  
Prelim Assess: Not reported  
Pollution Char: Not reported  
Remed Plan: Not reported  
Remed Action: Not reported  
Monitoring: Not reported  
Close Date: 1994-10-31 00:00:00  
Discover Date: 1994-03-24 00:00:00  
Enforcement Dt: Not reported  
Release Date: 1993-03-24 00:00:00  
Review Date: 1994-12-19 00:00:00  
Enter Date: 1993-03-24 00:00:00  
MTBE Date: Not reported  
GW Qualifier: Not reported  
Soil Qualifier: Not reported  
Max MTBE GW ppb: Not reported  
Max MTBE Soil ppb: Not reported  
County: 21  
Org Name: Not reported  
Reg Board: San Francisco Bay Region  
Status: Case Closed  
Chemical: Misc. Motor Vehicle Fuels  
Contact Person: Not reported  
Responsible Party: BLANK RP  
RP Address: Not reported  
Interim: No  
Oversight Prgm: LUST  
MTBE Class: \*  
MTBE Conc: 0  
MTBE Fuel: 0  
MTBE Tested: Not Required to be Tested.  
Staff: JMJ  
Staff Initials: BM  
Lead Agency: Local Agency  
Local Agency: 21028

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**VIACOM CABLEVISION (Continued)**

**S101307478**

Hydr Basin #: San Rafael Valley (2)  
Beneficial: Not reported  
Priority: Not reported  
Cleanup Fund Id: Not reported  
Work Suspended: No  
Local Case #: 10  
Case Number: 21-0179  
Qty Leaked: Not reported  
Abate Method: No Action Taken - no action has as yet been taken at the site  
Operator: Not reported  
Water System Name: Not reported  
Well Name: Not reported  
Distance To Lust: 0  
Waste Discharge Global ID: Not reported  
Waste Disch Assigned Name: Not reported  
Summary: ARCHIVED 3/1/96 CONTROL NO 120-009 SRC 0904659

**LUST:**

Region: 2  
Facility Status: Case Closed  
Facility Id: 21-0179  
Case Number: 10  
How Discovered: Tank Closure  
Leak Cause: Structure Failure  
Leak Source: Tank  
Date Leak Confirmed: Not reported  
Oversight Program: LUST  
Prelim. Site Assesment Wokplan Submitted: Not reported  
Preliminary Site Assesment Began: Not reported  
Pollution Characterization Began: Not reported  
Pollution Remediation Plan Submitted: Not reported  
Date Remediation Action Underway: Not reported  
Date Post Remedial Action Monitoring Began: Not reported

**Cortese:**

Region: CORTESE  
Facility Addr2: 1111 ANDERSEN DR

**SWEEPS UST:**

Status: A  
Comp Number: 10077  
Number: 1  
Board Of Equalization: Not reported  
Ref Date: 06-19-91  
Act Date: 06-19-91  
Created Date: 01-10-90  
Tank Status: A  
Owner Tank Id: 1  
Swrcb Tank Id: 21-028-010077-000001  
Actv Date: 06-19-91  
Capacity: 10000  
Tank Use: M.V. FUEL  
Stg: P  
Content: REG UNLEADED  
Number Of Tanks: 1

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

20  
SSW  
1/4-1/2  
0.450 mi.  
2375 ft.

**EXXON**  
**200 NELLEN AVE**  
**CORTE MADERA, CA 94925**

**LUST** S105762400  
**Cortese** N/A  
**HIST UST**  
**SWEEPS UST**

**Relative:**  
**Lower**

LUST:

**Actual:**  
**36 ft.**

Region: STATE  
Case Type: Other ground water affected  
Cross Street: FIFER AVE  
Enf Type: F  
Funding: Not reported  
How Discovered: Tank Closure  
How Stopped: Not reported  
Leak Cause: UNK  
Leak Source: UNK  
Global Id: T0604100044  
Stop Date: 1993-04-27 00:00:00  
Confirm Leak: Not reported  
Workplan: Not reported  
Prelim Assess: 1990-05-18 00:00:00  
Pollution Char: Not reported  
Remed Plan: Not reported  
Remed Action: Not reported  
Monitoring: Not reported  
Close Date: 1996-08-15 00:00:00  
Discover Date: 1990-09-04 00:00:00  
Enforcement Dt: Not reported  
Release Date: 1990-09-04 00:00:00  
Review Date: 1999-10-21 00:00:00  
Enter Date: 1990-09-04 00:00:00  
MTBE Date: 1965-01-02 00:00:00  
GW Qualifier: Not reported  
Soil Qualifier: Not reported  
Max MTBE GW ppb: 9  
Max MTBE Soil ppb: Not reported  
County: 21  
Org Name: Not reported  
Reg Board: San Francisco Bay Region  
Status: Case Closed  
Chemical: Unleaded Gasoline  
Contact Person: Not reported  
Responsible Party: BLANK RP  
RP Address: Not reported  
Interim: Yes  
Oversight Prgm: LUST  
MTBE Class: Not reported  
MTBE Conc: 1  
MTBE Fuel: 1  
MTBE Tested: MTBE Detected. Site tested for MTBE and MTBE detected  
Staff: JMJ  
Staff Initials: UNK  
Lead Agency: Regional Board  
Local Agency: 21000  
Hydr Basin #: Ross Valley (2-28)  
Beneficial: Not reported  
Priority: Not reported  
Cleanup Fund Id: 05383  
Work Suspended: No

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**EXXON (Continued)**

**S105762400**

Local Case #: 138  
Case Number: 21-0045  
Qty Leaked: Not reported  
Abate Method: Not reported  
Operator: Not reported  
Water System Name: Not reported  
Well Name: Not reported  
Distance To Lust: 0  
Waste Discharge Global ID: Not reported  
Waste Disch Assigned Name: Not reported  
Summary: ARCHIVED 11/1/96 CONTROL NO 120-109 SRC 0904759

**LUST:**

Region: 2  
Facility Status: Case Closed  
Facility Id: 21-0045  
Case Number: 138  
How Discovered: Tank Closure  
Leak Cause: UNK  
Leak Source: UNK  
Date Leak Confirmed: Not reported  
Oversight Program: LUST  
Prelim. Site Assessment Workplan Submitted: Not reported  
Preliminary Site Assessment Began: 5/18/1990  
Pollution Characterization Began: Not reported  
Pollution Remediation Plan Submitted: Not reported  
Date Remediation Action Underway: Not reported  
Date Post Remedial Action Monitoring Began: Not reported

**Cortese:**

Region: CORTESE  
Facility Addr2: 200 NELLEN AVE

**HIST UST:**

Region: STATE  
Facility ID: 00000024139  
Facility Type: Gas Station  
Other Type: Not reported  
Total Tanks: 0004  
Contact Name: JAMES & JAMSHEED  
Telephone: 4159248957  
Owner Name: EXXON COMPANY U.S.A.  
Owner Address: 16945 NORTHCHASE BLVD  
Owner City,St,Zip: HOUSTON, TX 77210

Tank Num: 001  
Container Num: 1  
Year Installed: 1967  
Tank Capacity: 00008000  
Tank Used for: PRODUCT  
Type of Fuel: UNLEADED  
Tank Construction: Not reported  
Leak Detection: Stock Inventor

Tank Num: 001  
Container Num: 1

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**EXXON (Continued)**

**S105762400**

Year Installed: 1965  
Tank Capacity: 00008000  
Tank Used for: PRODUCT  
Type of Fuel: REGULAR  
Tank Construction: Not reported  
Leak Detection: Stock Inventor

Tank Num: 002  
Container Num: 2  
Year Installed: 1967  
Tank Capacity: 00008000  
Tank Used for: PRODUCT  
Type of Fuel: REGULAR  
Tank Construction: Not reported  
Leak Detection: Stock Inventor

Tank Num: 002  
Container Num: 2  
Year Installed: 1965  
Tank Capacity: 00008000  
Tank Used for: PRODUCT  
Type of Fuel: UNLEADED  
Tank Construction: Not reported  
Leak Detection: Stock Inventor

Tank Num: 003  
Container Num: 3  
Year Installed: 1965  
Tank Capacity: 00008000  
Tank Used for: PRODUCT  
Type of Fuel: PREMIUM  
Tank Construction: Not reported  
Leak Detection: Stock Inventor

Tank Num: 003  
Container Num: 3  
Year Installed: 1967  
Tank Capacity: 00008000  
Tank Used for: PRODUCT  
Type of Fuel: PREMIUM  
Tank Construction: Not reported  
Leak Detection: Stock Inventor

Tank Num: 004  
Container Num: 4  
Year Installed: 1965  
Tank Capacity: 00000550  
Tank Used for: PRODUCT  
Type of Fuel: WASTE OIL  
Tank Construction: Not reported  
Leak Detection: Stock Inventor

Tank Num: 004  
Container Num: 4  
Year Installed: 1981  
Tank Capacity: 00001000  
Tank Used for: PRODUCT

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**EXXON (Continued)**

**S105762400**

Type of Fuel: WASTE OIL  
Tank Construction: Not reported  
Leak Detection: Stock Inventor

**SWEEPS UST:**

Status: Not reported  
Comp Number: 24139  
Number: Not reported  
Board Of Equalization: 44-000285  
Ref Date: Not reported  
Act Date: Not reported  
Created Date: Not reported  
Tank Status: Not reported  
Owner Tank Id: Not reported  
Swrcb Tank Id: 21-000-024139-000001  
Actv Date: Not reported  
Capacity: 8000  
Tank Use: M.V. FUEL  
Stg: PRODUCT  
Content: PRM UNLEADED  
Number Of Tanks: 4

Status: Not reported  
Comp Number: 24139  
Number: Not reported  
Board Of Equalization: 44-000285  
Ref Date: Not reported  
Act Date: Not reported  
Created Date: Not reported  
Tank Status: Not reported  
Owner Tank Id: Not reported  
Swrcb Tank Id: 21-000-024139-000002  
Actv Date: Not reported  
Capacity: 8000  
Tank Use: M.V. FUEL  
Stg: PRODUCT  
Content: PRM UNLEADED  
Number Of Tanks: Not reported

Status: Not reported  
Comp Number: 24139  
Number: Not reported  
Board Of Equalization: 44-000285  
Ref Date: Not reported  
Act Date: Not reported  
Created Date: Not reported  
Tank Status: Not reported  
Owner Tank Id: Not reported  
Swrcb Tank Id: 21-000-024139-000003  
Actv Date: Not reported  
Capacity: 8000  
Tank Use: M.V. FUEL  
Stg: PRODUCT  
Content: PRM UNLEADED  
Number Of Tanks: Not reported

Status: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**EXXON (Continued)**

**S105762400**

Comp Number: 24139  
Number: Not reported  
Board Of Equalization: 44-000285  
Ref Date: Not reported  
Act Date: Not reported  
Created Date: Not reported  
Tank Status: Not reported  
Owner Tank Id: Not reported  
Swrcb Tank Id: 21-000-024139-000004  
Actv Date: Not reported  
Capacity: 1000  
Tank Use: OIL  
Stg: WASTE  
Content: WASTE OIL  
Number Of Tanks: Not reported

Status: A  
Comp Number: 24139  
Number: 1  
Board Of Equalization: 44-000285  
Ref Date: 04-13-93  
Act Date: 03-28-94  
Created Date: 12-31-88  
Tank Status: A  
Owner Tank Id: 2-A  
Swrcb Tank Id: 21-000-024139-000005  
Actv Date: 09-25-91  
Capacity: 12000  
Tank Use: M.V. FUEL  
Stg: P  
Content: REG UNLEADED  
Number Of Tanks: 4

Status: A  
Comp Number: 24139  
Number: 1  
Board Of Equalization: 44-000285  
Ref Date: 04-13-93  
Act Date: 03-28-94  
Created Date: 12-31-88  
Tank Status: A  
Owner Tank Id: 2-B  
Swrcb Tank Id: 21-000-024139-000006  
Actv Date: 09-25-91  
Capacity: 12000  
Tank Use: M.V. FUEL  
Stg: P  
Content: REG UNLEADED  
Number Of Tanks: Not reported

Status: A  
Comp Number: 24139  
Number: 1  
Board Of Equalization: 44-000285  
Ref Date: 04-13-93  
Act Date: 03-28-94  
Created Date: 12-31-88

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**EXXON (Continued)**

**S105762400**

Tank Status: A  
Owner Tank Id: 2-C  
Swrcb Tank Id: 21-000-024139-000007  
Actv Date: 09-25-91  
Capacity: 12000  
Tank Use: M.V. FUEL  
Stg: P  
Content: LEADED  
Number Of Tanks: Not reported

Status: A  
Comp Number: 24139  
Number: 1  
Board Of Equalization: 44-000285  
Ref Date: 04-13-93  
Act Date: 03-28-94  
Created Date: 12-31-88  
Tank Status: A  
Owner Tank Id: 2-D  
Swrcb Tank Id: 21-000-024139-000008  
Actv Date: 09-25-91  
Capacity: 1000  
Tank Use: OIL  
Stg: W  
Content: WASTE OIL  
Number Of Tanks: Not reported

21  
SW  
1/4-1/2  
0.459 mi.  
2426 ft.

**CORTE MADERA CORPORATION YARD**  
**81 LUCKY DR**  
**CORTE MADERA, CA 94925**

**LUST S102428383**  
**Cortese N/A**

**Relative:**  
**Lower**

**LUST:**  
Region: STATE  
Case Type: Other ground water affected  
Cross Street: FIFER AVE  
Enf Type: R  
Funding: EF  
How Discovered: Tank Closure  
How Stopped: Not reported  
Leak Cause: UNK  
Leak Source: UNK  
Global Id: T0604100273  
Stop Date: 1993-08-13 00:00:00  
Confirm Leak: 1995-02-16 00:00:00  
Workplan: Not reported  
Prelim Assess: Not reported  
Pollution Char: Not reported  
Remed Plan: Not reported  
Remed Action: Not reported  
Monitoring: 2001-07-06 00:00:00  
Close Date: 2001-09-18 00:00:00  
Discover Date: 1991-08-13 00:00:00  
Enforcement Dt: 2000-12-15 00:00:00  
Release Date: 1991-08-13 00:00:00  
Review Date: 2001-07-12 00:00:00  
Enter Date: 1994-12-28 00:00:00

**Actual:**  
**15 ft.**

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**CORTE MADERA CORPORATION YARD (Continued)**

**S102428383**

MTBE Date: 1965-01-02 00:00:00  
GW Qualifier: =  
Soil Qualifier: =  
Max MTBE GW ppb: 0  
Max MTBE Soil ppb: 0  
County: 21  
Org Name: Not reported  
Reg Board: San Francisco Bay Region  
Status: Case Closed  
Chemical: Unleaded Gasoline  
Contact Person: Not reported  
Responsible Party: TOWN OF CORTE MADERA  
RP Address: Not reported  
Interim: Yes  
Oversight Prgm: LUST  
MTBE Class: Not reported  
MTBE Conc: 2  
MTBE Fuel: 1  
MTBE Tested: MTBE Detected. Site tested for MTBE and MTBE detected  
Staff: JMJ  
Staff Initials: UNK  
Lead Agency: Regional Board  
Local Agency: 21000  
Hydr Basin #: Ross Valley (2-28)  
Beneficial: Not reported  
Priority: Not reported  
Cleanup Fund Id: Not reported  
Work Suspended: No  
Local Case #: 21-0291  
Case Number: 21-0291  
Qty Leaked: Not reported  
Abate Method: Excavate and Dispose - remove contaminated soil and dispose in approved site, Remove Free Product - remove floating product from water table  
Operator: TOWN OF CORTE MADERA  
Water System Name: Not reported  
Well Name: Not reported  
Distance To Lust: 0  
Waste Discharge Global ID: Not reported  
Waste Disch Assigned Name: Not reported  
Summary: Closed Case - Datasafe Concord #30435. MAXSL TPH-G

**LUST:**

Region: 2  
Facility Status: Case Closed  
Facility Id: 21-0291  
Case Number: 21-0291  
How Discovered: Tank Closure  
Leak Cause: UNK  
Leak Source: UNK  
Date Leak Confirmed: 2/16/1995  
Oversight Program: LUST  
Prelim. Site Assessment Workplan Submitted: Not reported  
Preliminary Site Assessment Began: Not reported  
Pollution Characterization Began: Not reported  
Pollution Remediation Plan Submitted: Not reported  
Date Remediation Action Underway: Not reported

Map ID  
 Direction  
 Distance  
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
 EPA ID Number

**CORTE MADERA CORPORATION YARD (Continued)**

**S102428383**

Date Post Remedial Action Monitoring Began: 7/6/2001

Cortese:

Region: CORTESE  
 Facility Addr2: Not reported

**22**  
**NNE**  
**1/4-1/2**  
**0.482 mi.**  
**2547 ft.**

**MARIN SANITARY SERVICE TRANSFER STATION**  
**1060 ANDERSEN DRIVE**  
**SAN RAFAEL, CA**

**SWF/LF S102361123**  
**N/A**

**Relative:**  
**Lower**

SWF/LF:

Region: STATE  
 Facility ID: 21-AA-0005  
 Lat/Long: 37.956670 / -122.505550  
 Owner Name: Marin Sanitary Service  
 Owner Telephone: 4154562601  
 Owner Address: Not reported  
 Owner Address2: 1050 Andersen Drive  
 Owner City,St,Zip: San Rafael, CA 94901  
 Operator: Marin Sanitary Service  
 Operator Phone: 4154562601  
 Operator Address: Not reported  
 Operator Address2: 1050 Andersen Drive  
 Operator City,St,Zip: San Rafael, CA 94901  
 Operator's Status: Active  
 Permit Date: 4/7/2004  
 Permit Status: Permitted  
 Permitted Acreage: 8.00  
 Activity: Large Volume Transfer/Proc Facility  
 Regulation Status: Permitted  
 Landuse Name: Commercial  
 GIS Source: Map  
 Category: Transfer/Processing  
 Unit Number: 01  
 Inspection Frequency: Monthly  
 Accepted Waste: Construction/demolition,Other designated,Wood waste  
 Closure Date: / /  
 Closure Type: Not reported  
 Disposal Acreage: Not reported  
 Swisnumber: 21-AA-0005  
 Issue & Observations: San Rafael, CA 94901  
 Program Type: MRF  
 Permitted Throughput with Units: 2640  
 Actual Throughput with Units: Tons/day  
 Permitted Capacity with Units: 2640  
 Remaining Capacity: Not reported  
 Remaining Capacity with Units: Tons/day

**Actual:**  
**36 ft.**

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

23  
North  
1/2-1  
0.540 mi.  
2849 ft.

**GOLDEN GATE TRANSIT  
1011 ANDERSON ST  
SAN RAFAEL, CA 94901**

**Notify 65 1000186996  
RCRA-SQG CAD071880504  
FINDS  
HAZNET  
LUST  
Cortese  
UST  
HIST UST  
AIRS  
CA WDS**

**Relative:  
Lower**

**Actual:  
36 ft.**

Notify 65:

Date Reported: Not reported  
Staff Initials: Not reported  
Board File Number: Not reported  
Facility Type: Not reported  
Discharge Date: Not reported  
Incident Description: 92691

RCRA-SQG:

Date form received by agency: 09/01/1996  
Facility name: GOLDEN GATE TRANSIT  
Facility address: 1011 ANDERSON ST  
SAN RAFAEL, CA 94901  
EPA ID: CAD071880504  
Mailing address: PO BOX 3474  
SAN RAFAEL, CA 94912  
Contact: Not reported  
Contact address: Not reported  
Not reported  
Contact country: Not reported  
Contact telephone: Not reported  
Contact email: Not reported  
EPA Region: 09  
Land type: Facility is not located on Indian land. Additional information is not known.  
Classification: Small Small Quantity Generator  
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name: GOLDEN GATE BRIDGE DISTRICT  
Owner/operator address: NOT REQUIRED  
NOT REQUIRED, ME 99999  
Owner/operator country: Not reported  
Owner/operator telephone: (415) 555-1212  
Legal status: Private  
Owner/Operator Type: Owner  
Owner/Op start date: Not reported  
Owner/Op end date: Not reported

Owner/operator name: NOT REQUIRED  
Owner/operator address: NOT REQUIRED  
NOT REQUIRED, ME 99999  
Owner/operator country: Not reported  
Owner/operator telephone: (415) 555-1212

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GOLDEN GATE TRANSIT (Continued)**

**1000186996**

Legal status: Private  
Owner/Operator Type: Operator  
Owner/Op start date: Not reported  
Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste: Unknown  
Mixed waste (haz. and radioactive): Unknown  
Recycler of hazardous waste: No  
Transporter of hazardous waste: No  
Treater, storer or disposer of HW: No  
Underground injection activity: No  
On-site burner exemption: Unknown  
Furnace exemption: Unknown  
Used oil fuel burner: No  
Used oil processor: No  
User oil refiner: No  
Used oil fuel marketer to burner: No  
Used oil Specification marketer: No  
Used oil transfer facility: No  
Used oil transporter: No  
Off-site waste receiver: Commercial status unknown

Historical Generators:

Date form received by agency: 09/01/1996  
Facility name: GOLDEN GATE TRANSIT  
Classification: Small Quantity Generator

Date form received by agency: 08/03/1982  
Facility name: GOLDEN GATE TRANSIT  
Classification: Large Quantity Generator

Facility Has Received Notices of Violations:

Regulation violated: Not reported  
Area of violation: Generators - General  
Date violation determined: 02/14/1985  
Date achieved compliance: 03/20/1985  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 02/14/1985  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Evaluation Action Summary:

Evaluation date: 06/26/2002  
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE  
Area of violation: Not reported  
Date achieved compliance: Not reported  
Evaluation lead agency: State Contractor/Grantee

Evaluation date: 03/20/1985

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GOLDEN GATE TRANSIT (Continued)**

**1000186996**

Evaluation: COMPLIANCE SCHEDULE EVALUATION  
Area of violation: Not reported  
Date achieved compliance: Not reported  
Evaluation lead agency: State

Evaluation date: 02/14/1985  
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE  
Area of violation: Generators - General  
Date achieved compliance: 03/20/1985  
Evaluation lead agency: State

**FINDS:**

Other Pertinent Environmental Activity Identified at Site

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

California - Hazardous Waste Tracking System - Datamart

The NEI (National Emissions Inventory) database contains information on stationary and mobile sources that emit criteria air pollutants and their precursors, as well as hazardous air pollutants (HAPs).

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

**HAZNET:**

Gepaid: CAD071880504  
Contact: ROBB BURY/EH&S SPECIALIST  
Telephone: 4152574519  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 1011 ANDERSEN DR  
Mailing City, St, Zip: SAN RAFAEL, CA 949010000  
Gen County: Marin  
TSD EPA ID: CA0000084517  
TSD County: Sacramento  
Waste Category: Aqueous solution with less than 10% total organic residues  
Disposal Method: Transfer Station  
Tons: 1.44  
Facility County: Not reported

Gepaid: CAD071880504

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GOLDEN GATE TRANSIT (Continued)**

**1000186996**

Contact: GOLDEN GATE BRIDGE HWY/TRANS  
Telephone: 4159215858  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 1011 ANDERSEN DR  
Mailing City,St,Zip: SAN RAFAEL, CA 949015363  
Gen County: Marin  
TSD EPA ID: CAD980887418  
TSD County: 1  
Waste Category: Waste oil and mixed oil  
Disposal Method: Recycler  
Tons: 8.3400  
Facility County: Marin

Gepaid: CAD071880504  
Contact: GOLDEN GATE BRIDGE HWY/TRANS  
Telephone: 4159215858  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 1011 ANDERSEN DR  
Mailing City,St,Zip: SAN RAFAEL, CA 949015363  
Gen County: Marin  
TSD EPA ID: CAD008302903  
TSD County: Los Angeles  
Waste Category: Hydrocarbon solvents (benzene, hexane, Stoddard, etc.)  
Disposal Method: Recycler  
Tons: .4587  
Facility County: Marin

Gepaid: CAD071880504  
Contact: GOLDEN GATE BRIDGE HWY/TRANS  
Telephone: 4159215858  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 1011 ANDERSEN DR  
Mailing City,St,Zip: SAN RAFAEL, CA 949015363  
Gen County: Marin  
TSD EPA ID: CAT080033681  
TSD County: Los Angeles  
Waste Category: Other organic solids  
Disposal Method: Recycler  
Tons: 1.8360  
Facility County: Marin

Gepaid: CAD071880504  
Contact: GOLDEN GATE BRIDGE HWY/TRANS  
Telephone: 4159215858  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 1011 ANDERSEN DR  
Mailing City,St,Zip: SAN RAFAEL, CA 949015363  
Gen County: Marin  
TSD EPA ID: CA0000084517  
TSD County: Sacramento  
Waste Category: Aqueous solution with less than 10% total organic residues  
Disposal Method: Not reported  
Tons: .0208

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GOLDEN GATE TRANSIT (Continued)**

**1000186996**

Facility County: Marin

[Click this hyperlink](#) while viewing on your computer to access 63 additional CA\_HAZNET: record(s) in the EDR Site Report.

LUST:

Region: STATE  
Case Type: Other ground water affected  
Cross Street: JACOBY ST  
Enf Type: F  
Funding: CLOS  
How Discovered: Tank Closure  
How Stopped: Not reported  
Leak Cause: UNK  
Leak Source: UNK  
Global Id: T0604100054  
Stop Date: 1989-10-11 00:00:00  
Confirm Leak: Not reported  
Workplan: Not reported  
Prelim Assess: Not reported  
Pollution Char: 1996-03-20 00:00:00  
Remed Plan: Not reported  
Remed Action: Not reported  
Monitoring: Not reported  
Close Date: 2006-12-12 00:00:00  
Discover Date: 1989-10-11 00:00:00  
Enforcement Dt: Not reported  
Release Date: 1989-10-11 00:00:00  
Review Date: 1996-03-20 00:00:00  
Enter Date: 1989-08-04 00:00:00  
MTBE Date: Not reported  
GW Qualifier: Not reported  
Soil Qualifier: Not reported  
Max MTBE GW ppb: Not reported  
Max MTBE Soil ppb: Not reported  
County: 21  
Org Name: Not reported  
Reg Board: San Francisco Bay Region  
Status: Case Closed  
Chemical: Diesel  
Contact Person: Not reported  
Responsible Party: LYNFORD EDWARDS  
RP Address: P.O. BOX 9000 PRESIDIO STATION  
Interim: Yes  
Oversight Prgm: LUST  
MTBE Class: \*  
MTBE Conc: 0  
MTBE Fuel: 0  
MTBE Tested: MTBE Detected. Site tested for MTBE and MTBE detected  
Staff: REL  
Staff Initials: BM  
Lead Agency: Regional Board  
Local Agency: 21028  
Hydr Basin #: San Rafael Valley (2)  
Beneficial: Not reported  
Priority: Not reported  
Cleanup Fund Id: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GOLDEN GATE TRANSIT (Continued)**

**1000186996**

Work Suspended: No  
Local Case #: 21-0056  
Case Number: 21-0056  
Qty Leaked: Not reported  
Abate Method: Excavate and Dispose - remove contaminated soil and dispose in approved site  
Operator: Not reported  
Water System Name: Not reported  
Well Name: Not reported  
Distance To Lust: 0  
Waste Discharge Global ID: Not reported  
Waste Disch Assigned Name: Not reported  
Summary: Closed Case - DataSafe Concord #30818

**LUST:**

Region: 2  
Facility Status: Pollution Characterization  
Facility Id: 21-0056  
Case Number: 21-0056  
How Discovered: Tank Closure  
Leak Cause: UNK  
Leak Source: UNK  
Date Leak Confirmed: Not reported  
Oversight Program: LUST  
Prelim. Site Assesment Wokplan Submitted: Not reported  
Preliminary Site Assesment Began: Not reported  
Pollution Characterization Began: 3/20/1996  
Pollution Remediation Plan Submitted: Not reported  
Date Remediation Action Underway: Not reported  
Date Post Remedial Action Monitoring Began: Not reported

**Cortese:**

Region: CORTESE  
Facility Addr2: 1011 ANDERSEN DR

**UST:**

Local Agency: 21028  
Facility ID: 300378

**UST:**

Region: MARIN  
Facility Id: 30-0378  
Certificate Number: 05371  
Tank Number: 000001  
Tank Status: Active  
Tank Contents: Motor vehicle fuel  
Last Inspected: 4/30/2007  
Active: Yes  
Program: Not reported  
Location: Not reported  
Pulled Date: Not reported  
Reason: Not reported

Region: MARIN  
Facility Id: 30-0378

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GOLDEN GATE TRANSIT (Continued)**

**1000186996**

Certificate Number: 05371  
Tank Number: 000002  
Tank Status: Active  
Tank Contents: Motor vehicle fuel  
Last Inspected: 4/30/2007  
Active: Yes  
Program: Not reported  
Location: Not reported  
Pulled Date: Not reported  
Reason: Not reported

Region: MARIN  
Facility Id: 30-0378  
Certificate Number: 05371  
Tank Number: 000003  
Tank Status: Active  
Tank Contents: Motor vehicle fuel  
Last Inspected: 4/30/2007  
Active: Yes  
Program: Not reported  
Location: Not reported  
Pulled Date: Not reported  
Reason: Not reported

Region: MARIN  
Facility Id: 30-0378  
Certificate Number: 05371  
Tank Number: 000004  
Tank Status: Tank Removed  
Tank Contents: Motor vehicle fuel  
Last Inspected: 4/30/2007  
Active: Yes  
Program: Not reported  
Location: Not reported  
Pulled Date: Not reported  
Reason: Not reported

**HIST UST:**

Region: STATE  
Facility ID: 00000030046  
Facility Type: Other  
Other Type: BUS MAINTENANCE FAC.  
Total Tanks: 0011  
Contact Name: ANGELO LEONE  
Telephone: 4154573110  
Owner Name: GOLDEN GATE BRIDGE HIGHWAY AND  
Owner Address: GOLDEN GATE BRIDGE-TOLL PLAZA  
Owner City,St,Zip: SAN FRANCISCO, CA 94129

Tank Num: 001  
Container Num: DFT-1-D1  
Year Installed: 1972  
Tank Capacity: 00012000  
Tank Used for: PRODUCT  
Type of Fuel: DIESEL  
Tank Construction: .25 inches  
Leak Detection: Stock Inventor

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GOLDEN GATE TRANSIT (Continued)**

**1000186996**

Tank Num: 002  
Container Num: DFT-2-D1  
Year Installed: 1972  
Tank Capacity: 00012000  
Tank Used for: PRODUCT  
Type of Fuel: DIESEL  
Tank Construction: .25 inches  
Leak Detection: Stock Inventor

Tank Num: 003  
Container Num: MFT-1-D1  
Year Installed: 1982  
Tank Capacity: 00012000  
Tank Used for: PRODUCT  
Type of Fuel: Not reported  
Tank Construction: .25 inches  
Leak Detection: Stock Inventor

Tank Num: 004  
Container Num: GT-1-D1  
Year Installed: 1972  
Tank Capacity: 00002000  
Tank Used for: Not reported  
Type of Fuel: Not reported  
Tank Construction: .25 inches  
Leak Detection: None

Tank Num: 005  
Container Num: GR-2-D1  
Year Installed: 1983  
Tank Capacity: 00006000  
Tank Used for: PRODUCT  
Type of Fuel: UNLEADED  
Tank Construction: .25 inches  
Leak Detection: Stock Inventor

Tank Num: 006  
Container Num: DOT-1-D1  
Year Installed: 1972  
Tank Capacity: 00002000  
Tank Used for: WASTE  
Type of Fuel: WASTE OIL  
Tank Construction: .25 inches  
Leak Detection: Sensor Instrument

Tank Num: 007  
Container Num: WOT-1-D1  
Year Installed: 1972  
Tank Capacity: 00008000  
Tank Used for: WASTE  
Type of Fuel: WASTE OIL  
Tank Construction: .25 inches  
Leak Detection: Sensor Instrument

Tank Num: 008  
Container Num: OWS-1-D1  
Year Installed: 1972

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GOLDEN GATE TRANSIT (Continued)**

**1000186996**

Tank Capacity: 00000200  
Tank Used for: WASTE  
Type of Fuel: WASTE OIL  
Tank Construction: 4 inches  
Leak Detection: Visual

Tank Num: 009  
Container Num: OWS-2-D1  
Year Installed: 1972  
Tank Capacity: 00000200  
Tank Used for: WASTE  
Type of Fuel: WASTE OIL  
Tank Construction: 4 inches  
Leak Detection: Visual

Tank Num: 010  
Container Num: HPOS-1-D1  
Year Installed: 1972  
Tank Capacity: 00000100  
Tank Used for: WASTE  
Type of Fuel: WASTE OIL  
Tank Construction: 4 inches  
Leak Detection: Visual

Tank Num: 011  
Container Num: HPOS-2-D1  
Year Installed: 1972  
Tank Capacity: 00000100  
Tank Used for: WASTE  
Type of Fuel: WASTE OIL  
Tank Construction: 4 inches  
Leak Detection: Visual

**EMI:**

Year: 1993  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 1793  
Air District Name: BA  
SIC Code: 4111  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 0  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 0  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 1995  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 1793  
Air District Name: BA  
SIC Code: 4111

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GOLDEN GATE TRANSIT (Continued)**

**1000186996**

Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 0  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 0  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 1996  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 1793  
Air District Name: BA  
SIC Code: 4111  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 0  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 0  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 1997  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 1793  
Air District Name: BA  
SIC Code: 4111  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 0  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 1  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 1998  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 1793  
Air District Name: BA  
SIC Code: 4111  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 0  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GOLDEN GATE TRANSIT (Continued)**

**1000186996**

NOX - Oxides of Nitrogen Tons/Yr:	1
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smlr Tons/Yr:	0
Year:	1999
Carbon Monoxide Emissions Tons/Yr:	21
Air Basin:	SF
Facility ID:	1793
Air District Name:	BA
SIC Code:	4111
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smlr Tons/Yr:	0
Year:	2000
Carbon Monoxide Emissions Tons/Yr:	21
Air Basin:	SF
Facility ID:	1793
Air District Name:	BA
SIC Code:	4111
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smlr Tons/Yr:	0
Year:	2001
Carbon Monoxide Emissions Tons/Yr:	21
Air Basin:	SF
Facility ID:	1793
Air District Name:	BA
SIC Code:	4911
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	1
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smlr Tons/Yr:	0
Year:	2002

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GOLDEN GATE TRANSIT (Continued)**

**1000186996**

Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 1793  
Air District Name: BA  
SIC Code: 4111  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 0  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 1  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 2003  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 1793  
Air District Name: BA  
SIC Code: 4111  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 0  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 0  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 2003  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 12572  
Air District Name: BA  
SIC Code: 5511  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 0  
Reactive Organic Gases Tons/Yr: 0  
Carbon Monoxide Emissions Tons/Yr: 0  
NOX - Oxides of Nitrogen Tons/Yr: 0  
SOX - Oxides of Sulphur Tons/Yr: 0  
Particulate Matter Tons/Yr: 0  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0

Year: 2004  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 1793  
Air District Name: BA  
SIC Code: 4111  
Air District Name: BAY AREA AQMD

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GOLDEN GATE TRANSIT (Continued)**

**1000186996**

Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: 0.072  
Reactive Organic Gases Tons/Yr: 0.0677265  
Carbon Monoxide Emissions Tons/Yr: 0.012  
NOX - Oxides of Nitrogen Tons/Yr: 0.128  
SOX - Oxides of Sulphur Tons/Yr: 0.003  
Particulate Matter Tons/Yr: 0.001  
Part. Matter 10 Micrometers & Smlr Tons/Yr: 0.000976

Year: 2005  
Carbon Monoxide Emissions Tons/Yr: 21  
Air Basin: SF  
Facility ID: 1793  
Air District Name: BA  
SIC Code: 4111  
Air District Name: BAY AREA AQMD  
Community Health Air Pollution Info System: Not reported  
Consolidated Emission Reporting Rule: Not reported  
Total Organic Hydrocarbon Gases Tons/Yr: .072  
Reactive Organic Gases Tons/Yr: .0677265  
Carbon Monoxide Emissions Tons/Yr: .012  
NOX - Oxides of Nitrogen Tons/Yr: .128  
SOX - Oxides of Sulphur Tons/Yr: .003  
Particulate Matter Tons/Yr: .001  
Part. Matter 10 Micrometers & Smlr Tons/Yr: .000976

**CA WDS:**

Facility ID: San Francisco Bay 211010665  
Facility Type: Not reported  
Facility Status: Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.  
NPDES Number: CAS000001 The 1st 2 characters designate the state. The remaining 7 are assigned by the Regional Board  
Subregion: 2  
Facility Telephone: Not reported  
Facility Contact: Not reported  
Agency Name: GOLDEN GATE BRIDGE  
Agency Address: Not reported  
Agency City,St,Zip: 0  
Agency Contact: Not reported  
Agency Telephone: Not reported  
Agency Type: Not reported  
SIC Code: 0  
SIC Code 2: Not reported  
Primary Waste: Not reported  
Primary Waste Type: Not reported  
Secondary Waste: Not reported  
Secondary Waste Type: Not reported  
Design Flow: 0  
Baseline Flow: 0  
Reclamation: Not reported  
POTW: Not reported  
Treat To Water: Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher

Map ID  
 Direction  
 Distance  
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
 EPA ID Number

**GOLDEN GATE TRANSIT (Continued)**

**1000186996**

Complexity: Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.  
 Category C - Facilities having no waste treatment systems, such as cooling water dischargers or those who must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.

**24**  
**ENE**  
**1/2-1**  
**0.631 mi.**  
**3330 ft.**

**SAN RAFAEL U-HAUL CENTER**  
**1205 EAST FRANCISCO BLVD.**  
**SAN RAFAEL, CA 92691**

**Notify 65** **U000058096**  
**N/A**

**Relative:**  
**Lower**

Notify 65:  
 Date Reported: Not reported  
 Staff Initials: Not reported  
 Board File Number: Not reported  
 Facility Type: Not reported  
 Discharge Date: Not reported  
 Incident Description: 92691

**Actual:**  
**10 ft.**

**25**  
**NE**  
**1/2-1**  
**0.640 mi.**  
**3378 ft.**

**ALBERT'S TRANSMISSION SERVICE**  
**1249 FRANCISCO BLVD E**  
**SAN RAFAEL, CA 94901**

**Notify 65** **1000219748**  
**HAZNET** **N/A**  
**LUST**  
**Cortese**  
**CA FID UST**  
**HIST UST**  
**SWEEPS UST**

**Relative:**  
**Lower**

Notify 65:  
 Date Reported: Not reported  
 Staff Initials: Not reported  
 Board File Number: Not reported  
 Facility Type: Not reported  
 Discharge Date: Not reported  
 Incident Description: 92691

**Actual:**  
**13 ft.**

HAZNET:  
 Gepaid: CAD982334419  
 Contact: REECE KERLEY  
 Telephone: 0000000000  
 Facility Addr2: Not reported  
 Mailing Name: Not reported  
 Mailing Address: 1249 FRANCISCO BLVD E  
 Mailing City,St,Zip: SAN RAFAEL, CA 949010000  
 Gen County: Marin  
 TSD EPA ID: CAD093459485  
 TSD County: Fresno  
 Waste Category: Unspecified solvent mixture Waste  
 Disposal Method: Transfer Station  
 Tons: .0208  
 Facility County: Marin  
 Gepaid: CAD982334419

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**ALBERT'S TRANSMISSION SERVICE (Continued)**

**1000219748**

Contact: REECE KERLEY  
Telephone: 0000000000  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 1249 FRANCISCO BLVD E  
Mailing City,St,Zip: SAN RAFAEL, CA 949010000  
Gen County: Marin  
TSD EPA ID: CAD982446866  
TSD County: Solano  
Waste Category: Aqueous solution with less than 10% total organic residues  
Disposal Method: Transfer Station  
Tons: .2085  
Facility County: Marin

Gepaid: CAD982334419  
Contact: REECE KERLEY  
Telephone: 0000000000  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 1249 FRANCISCO BLVD E  
Mailing City,St,Zip: SAN RAFAEL, CA 949010000  
Gen County: Marin  
TSD EPA ID: CAD982446874  
TSD County: Yolo  
Waste Category: Aqueous solution with less than 10% total organic residues  
Disposal Method: Transfer Station  
Tons: 0.2293  
Facility County: Marin

**LUST:**

Region: STATE  
Case Type: Other ground water affected  
Cross Street: IRENE ST  
Enf Type: F  
Funding: Not reported  
How Discovered: Tank Closure  
How Stopped: Not reported  
Leak Cause: UNK  
Leak Source: Piping  
Global Id: T0604100004  
Stop Date: 1990-06-15 00:00:00  
Confirm Leak: 1994-12-19 00:00:00  
Workplan: Not reported  
Prelim Assess: Not reported  
Pollution Char: Not reported  
Remed Plan: Not reported  
Remed Action: Not reported  
Monitoring: Not reported  
Close Date: 1996-11-13 00:00:00  
Discover Date: 1990-06-15 00:00:00  
Enforcement Dt: Not reported  
Release Date: 1990-10-15 00:00:00  
Review Date: 1999-10-26 00:00:00  
Enter Date: 1990-12-08 00:00:00  
MTBE Date: Not reported  
GW Qualifier: Not reported  
Soil Qualifier: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**ALBERT'S TRANSMISSION SERVICE (Continued)**

**1000219748**

Max MTBE GW ppb: Not reported  
Max MTBE Soil ppb: Not reported  
County: 21  
Org Name: Not reported  
Reg Board: San Francisco Bay Region  
Status: Case Closed  
Chemical: Waste Oil  
Contact Person: Not reported  
Responsible Party: BLANK RP  
RP Address: Not reported  
Interim: Yes  
Oversight Prgm: LUST  
MTBE Class: \*  
MTBE Conc: 0  
MTBE Fuel: 0  
MTBE Tested: Not Required to be Tested.  
Staff: JMJ  
Staff Initials: BM  
Lead Agency: Local Agency  
Local Agency: 21028  
Hydr Basin #: UNNAMED BASIN  
Beneficial: Not reported  
Priority: Not reported  
Cleanup Fund Id: 00099  
Work Suspended: No  
Local Case #: 11  
Case Number: 21-0004  
Qty Leaked: Not reported  
Abate Method: Excavate and Treat - remove contaminated soil and treat (includes spreading or land farming), Enhanced Biodegradation - use of any available technology to promote bacterial decomposition of contaminants  
Operator: Not reported  
Water System Name: Not reported  
Well Name: Not reported  
Distance To Lust: 0  
Waste Discharge Global ID: Not reported  
Waste Disch Assigned Name: Not reported  
Summary: RWQCB CLOSURE LETTER IS DATED 11/13/96.

**LUST:**

Region: 2  
Facility Status: Case Closed  
Facility Id: 21-0004  
Case Number: 11  
How Discovered: Tank Closure  
Leak Cause: UNK  
Leak Source: Piping  
Date Leak Confirmed: 12/19/1994  
Oversight Program: LUST  
Prelim. Site Assessment Workplan Submitted: Not reported  
Preliminary Site Assessment Began: Not reported  
Pollution Characterization Began: Not reported  
Pollution Remediation Plan Submitted: Not reported  
Date Remediation Action Underway: Not reported  
Date Post Remedial Action Monitoring Began: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**ALBERT'S TRANSMISSION SERVICE (Continued)**

**1000219748**

Cortese:

Region: CORTESE  
Facility Addr2: Not reported

CA FID UST:

Facility ID: 21000015  
Regulated By: UTKNI  
Regulated ID: 00011444  
Cortese Code: Not reported  
SIC Code: Not reported  
Facility Phone: 4154537010  
Mail To: Not reported  
Mailing Address: SAME  
Mailing Address 2: Not reported  
Mailing City,St,Zip: SAN RAFAEL 94901  
Contact: Not reported  
Contact Phone: Not reported  
DUNs Number: Not reported  
NPDES Number: Not reported  
EPA ID: Not reported  
Comments: Not reported  
Status: Inactive

HIST UST:

Region: STATE  
Facility ID: 00000011444  
Facility Type: Other  
Other Type: TRANSMISSION REPAIR  
Total Tanks: 0001  
Contact Name: ALBERT TANNER  
Telephone: 4154537010  
Owner Name: ALBERTS TRANSMISSIONS  
Owner Address: 1249 FRANCISCO BLVD. E  
Owner City,St,Zip: SAN RAFAEL, CA 94901

Tank Num: 001  
Container Num: 1  
Year Installed: 1976  
Tank Capacity: 00000500  
Tank Used for: WASTE  
Type of Fuel: WASTE OIL  
Tank Construction: Not reported  
Leak Detection: None

SWEEPS UST:

Status: Not reported  
Comp Number: 11444  
Number: Not reported  
Board Of Equalization: Not reported  
Ref Date: Not reported  
Act Date: Not reported  
Created Date: Not reported  
Tank Status: Not reported  
Owner Tank Id: Not reported  
Swrcb Tank Id: 21-028-011444-000001

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**ALBERT'S TRANSMISSION SERVICE (Continued)**

**1000219748**

Actv Date: Not reported  
Capacity: 500  
Tank Use: OIL  
Stg: WASTE  
Content: WASTE OIL  
Number Of Tanks: 1

**26**  
**NE**  
**1/2-1**  
**0.643 mi.**  
**3393 ft.**

**MARIN DODGE**  
**1075 FRANCISCO BLVD E**  
**SAN RAFAEL, CA 94901**

**RCRA-SQG 1000594545**  
**FINDS CAD983583790**  
**HAZNET**  
**LUST**  
**Cortese**  
**ENVIROSTOR**

**Relative:**  
**Lower**

**RCRA-SQG:**

**Actual:**  
**31 ft.**

Date form received by agency: 06/04/1991  
Facility name: MARIN DODGE  
Facility address: 1075 FRANCISCO BLVD E  
SAN RAFAEL, CA 94901  
EPA ID: CAD983583790  
Mailing address: FRANCISCO BLVD E  
SAN RAFAEL, CA 94901  
Contact: PETER AUERBACH  
Contact address: 1075 FRANCISCO BLVD E  
SAN RAFAEL, CA 94901  
Contact country: US  
Contact telephone: (415) 456-5120  
Contact email: Not reported  
EPA Region: 09  
Classification: Small Small Quantity Generator  
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

**Owner/Operator Summary:**

Owner/operator name: NOT REQUIRED  
Owner/operator address: NOT REQUIRED  
NOT REQUIRED, ME 99999  
Owner/operator country: Not reported  
Owner/operator telephone: (415) 555-1212  
Legal status: Private  
Owner/Operator Type: Operator  
Owner/Op start date: Not reported  
Owner/Op end date: Not reported

Owner/operator name: JAMES R BISHOP  
Owner/operator address: NOT REQUIRED  
NOT REQUIRED, ME 99999  
Owner/operator country: Not reported  
Owner/operator telephone: (415) 555-1212  
Legal status: Private  
Owner/Operator Type: Owner  
Owner/Op start date: Not reported  
Owner/Op end date: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MARIN DODGE (Continued)**

**1000594545**

Handler Activities Summary:

U.S. importer of hazardous waste: Unknown  
Mixed waste (haz. and radioactive): Unknown  
Recycler of hazardous waste: No  
Transporter of hazardous waste: No  
Treater, storer or disposer of HW: No  
Underground injection activity: No  
On-site burner exemption: Unknown  
Furnace exemption: Unknown  
Used oil fuel burner: No  
Used oil processor: No  
User oil refiner: No  
Used oil fuel marketer to burner: No  
Used oil Specification marketer: No  
Used oil transfer facility: No  
Used oil transporter: No  
Off-site waste receiver: Commercial status unknown

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZNET:

Gepaid: CAD983583790  
Contact: RI-JOYCE, INC  
Telephone: 4155551212  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 1880 WELLSONA RD  
Mailing City,St,Zip: PASO ROBLES, CA 934461066  
Gen County: Marin  
TSD EPA ID: CAD093459485  
TSD County: Fresno  
Waste Category: Unspecified solvent mixture Waste  
Disposal Method: Transfer Station  
Tons: .1668  
Facility County: Marin

Gepaid: CAD983583790  
Contact: RI-JOYCE, INC  
Telephone: 4155551212  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 1880 WELLSONA RD  
Mailing City,St,Zip: PASO ROBLES, CA 934461066  
Gen County: Marin  
TSD EPA ID: CAD009452657  
TSD County: San Mateo

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MARIN DODGE (Continued)**

**1000594545**

Waste Category: Unspecified organic liquid mixture  
Disposal Method: Recycler  
Tons: 3.7320  
Facility County: Marin

Gepaid: CAL000022197  
Contact: BISHOP JAMES  
Telephone: 4152984900  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 1075 FRANCISCO BLVD  
Mailing City,St,Zip: SAN RAFAEL, CA 949010000  
Gen County: Marin  
TSD EPA ID: CAD009452657  
TSD County: San Mateo  
Waste Category: Unspecified organic liquid mixture  
Disposal Method: Recycler  
Tons: .4587  
Facility County: Marin

Gepaid: CAD983583790  
Contact: RON BISTOLFO/ENVIRN DIRECTOR  
Telephone: 6502222419  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 3737 FIRST STREET  
Mailing City,St,Zip: LIVERMORE, CA 945500000  
Gen County: Marin  
TSD EPA ID: Not reported  
TSD County: Sacramento  
Waste Category: Aqueous solution with less than 10% total organic residues  
Disposal Method: Transfer Station  
Tons: 0.28  
Facility County: Not reported

Gepaid: CAD983583790  
Contact: RON BISTOLFO/ENVIRN DIRECTOR  
Telephone: 6502222419  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: 3737 FIRST STREET  
Mailing City,St,Zip: LIVERMORE, CA 945500000  
Gen County: Marin  
TSD EPA ID: Not reported  
TSD County: Sacramento  
Waste Category: Unspecified organic liquid mixture  
Disposal Method: Transfer Station  
Tons: 0.54  
Facility County: Not reported

[Click this hyperlink](#) while viewing on your computer to access 31 additional CA\_HAZNET: record(s) in the EDR Site Report.

**LUST:**

Region: STATE  
Case Type: Other ground water affected  
Cross Street: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MARIN DODGE (Continued)**

**1000594545**

Enf Type: F  
Funding: CLOS  
How Discovered: Tank Closure  
How Stopped: Not reported  
Leak Cause: UNK  
Leak Source: Tank  
Global Id: T0604100115  
Stop Date: 1987-03-20 00:00:00  
Confirm Leak: 1995-01-05 00:00:00  
Workplan: Not reported  
Prelim Assess: Not reported  
Pollution Char: Not reported  
Remed Plan: Not reported  
Remed Action: Not reported  
Monitoring: Not reported  
Close Date: 2006-05-12 00:00:00  
Discover Date: 1987-03-20 00:00:00  
Enforcement Dt: Not reported  
Release Date: 1987-04-27 00:00:00  
Review Date: 1998-08-20 00:00:00  
Enter Date: 1987-04-18 00:00:00  
MTBE Date: Not reported  
GW Qualifier: Not reported  
Soil Qualifier: Not reported  
Max MTBE GW ppb: Not reported  
Max MTBE Soil ppb: Not reported  
County: 21  
Org Name: Not reported  
Reg Board: San Francisco Bay Region  
Status: Case Closed  
Chemical: Waste Oil  
Contact Person: Not reported  
Responsible Party: BLANK RP  
RP Address: Not reported  
Interim: No  
Oversight Prgm: LUST  
MTBE Class: \*  
MTBE Conc: 0  
MTBE Fuel: 0  
MTBE Tested: MTBE Detected. Site tested for MTBE and MTBE detected  
Staff: JMJ  
Staff Initials: BM  
Lead Agency: Regional Board  
Local Agency: 21028  
Hydr Basin #: San Rafael Valley (2  
Beneficial: Not reported  
Priority: 2A4  
Cleanup Fund Id: Not reported  
Work Suspended: No  
Local Case #: 19  
Case Number: 21-0122  
Qty Leaked: Not reported  
Abate Method: No Action Taken - no action has as yet been taken at the site  
Operator: Not reported  
Water System Name: Not reported  
Well Name: Not reported  
Distance To Lust: 0

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MARIN DODGE (Continued)**

**1000594545**

Waste Discharge Global ID: Not reported  
Waste Disch Assigned Name: Not reported  
Summary: MAXGW XYLENE

**LUST:**

Region: 2  
Facility Status: Leak being confirmed  
Facility Id: 21-0122  
Case Number: 19  
How Discovered: Tank Closure  
Leak Cause: UNK  
Leak Source: Tank  
Date Leak Confirmed: 1/5/1995  
Oversight Program: LUST  
Prelim. Site Assessment Wokplan Submitted: Not reported  
Preliminary Site Assessment Began: Not reported  
Pollution Characterization Began: Not reported  
Pollution Remediation Plan Submitted: Not reported  
Date Remediation Action Underway: Not reported  
Date Post Remedial Action Monitoring Began: Not reported

**Cortese:**

Region: CORTESE  
Facility Addr2: 1075 FRANCISCO BLVD

**ENVIROSTOR:**

Site Type: Historical  
Site Type Detailed: \* Historical  
Acres: Not reported  
NPL: NO  
Regulatory Agencies: NONE SPECIFIED  
Lead Agency: NONE SPECIFIED  
Program Manager: Not reported  
Supervisor: Referred - Not Assigned  
Division Branch: North Coast  
Facility ID: 21490011  
Site Code: Not reported  
Assembly: Not reported  
Senate: Not reported  
Special Program: \* Rural County Survey Program  
Status: Refer: RWQCB  
Status Date: 1989-11-09 00:00:00  
Restricted Use: NO  
Funding: Not reported  
Latitude: 0  
Longitude: 0  
Alias Name: 21490011  
Alias Type: Envirostor ID Number  
  
APN: NONE SPECIFIED  
APN Description: Not reported  
Comments: FACILITY IDENTIFIED RWQCB SWD FILE CLASS III INACTIVE SITE; FORMERLY OPER- ATED BY MAGGORIA AND GHILLOTTISITE SCREENING DONE ACTION STATUS RATIONALE: ABANDONED DISPOSAL SITE NOT LISTED ON SWRCB CALDERON LIST.

**Completed Info:**

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MARIN DODGE (Continued)**

**1000594545**

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Discovery  
Completed Date: 02/01/87

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Site Screening  
Completed Date: 12/15/89

Confirmed: NONE SPECIFIED  
Confirmed Description: Not reported  
Future Area Name: Not reported  
Future Sub Area Name: Not reported  
Future Document Type: Not reported  
Future Due Date: Not reported  
Media Affected: NONE SPECIFIED  
Media Affected Desc: Not reported

Management:

Management Required: NONE SPECIFIED  
Management Required Desc: Not reported  
Potential: NONE SPECIFIED  
Potential Description: Not reported  
Schedule Area Name: Not reported  
Schedule Sub Area Name: Not reported  
Schedule Document Type: Not reported  
Schedule Due Date: Not reported  
Schedule Revised Date: Not reported  
PastUse: NONE SPECIFIED

27  
East  
1/2-1  
0.644 mi.  
3401 ft.

**PG & E SERVICE CENTER  
1220 ANDERSEN DR  
SAN RAFAEL, CA 94901**

**LUST S101481146  
Cortese N/A  
ENVIROSTOR**

Relative:  
Lower

LUST:

Actual:  
8 ft.

Region: STATE  
Case Type: Other ground water affected  
Cross Street: BELLAM BLVD  
Enf Type: F  
Funding: NONE  
How Discovered: Tank Closure  
How Stopped: Not reported  
Leak Cause: UNK  
Leak Source: Piping  
Global Id: T0604100105  
Stop Date: 1990-05-17 00:00:00  
Confirm Leak: Not reported  
Workplan: 1990-10-19 00:00:00  
Prelim Assess: 1993-04-19 00:00:00  
Pollution Char: Not reported  
Remed Plan: Not reported  
Remed Action: Not reported  
Monitoring: Not reported  
Close Date: 1994-12-30 00:00:00  
Discover Date: 1990-05-17 00:00:00

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**PG & E SERVICE CENTER (Continued)**

**S101481146**

Enforcement Dt: Not reported  
Release Date: 1990-03-13 00:00:00  
Review Date: 1994-12-19 00:00:00  
Enter Date: 1990-04-12 00:00:00  
MTBE Date: Not reported  
GW Qualifier: Not reported  
Soil Qualifier: Not reported  
Max MTBE GW ppb: Not reported  
Max MTBE Soil ppb: Not reported  
County: 21  
Org Name: Not reported  
Reg Board: San Francisco Bay Region  
Status: Case Closed  
Chemical: Waste Oil  
Contact Person: Not reported  
Responsible Party: BLANK RP  
RP Address: Not reported  
Interim: No  
Oversight Prgm: LUST  
MTBE Class: \*  
MTBE Conc: 0  
MTBE Fuel: 0  
MTBE Tested: Not Required to be Tested.  
Staff: JMJ  
Staff Initials: BM  
Lead Agency: Local Agency  
Local Agency: 21028  
Hydr Basin #: San Rafael Valley (2)  
Beneficial: Not reported  
Priority: Not reported  
Cleanup Fund Id: Not reported  
Work Suspended: No  
Local Case #: 12  
Case Number: 21-0110  
Qty Leaked: Not reported  
Abate Method: No Action Taken - no action has as yet been taken at the site  
Operator: Not reported  
Water System Name: Not reported  
Well Name: Not reported  
Distance To Lust: 0  
Waste Discharge Global ID: Not reported  
Waste Disch Assigned Name: Not reported  
Summary: ARCHIVED 3/1/96 CONTROL NO 120-007 SRC 0904657

**LUST:**

Region: 2  
Facility Status: Case Closed  
Facility Id: 21-0110  
Case Number: 12  
How Discovered: Tank Closure  
Leak Cause: UNK  
Leak Source: Piping  
Date Leak Confirmed: Not reported  
Oversight Program: LUST  
Prelim. Site Assesment Wokplan Submitted: 10/19/1990  
Preliminary Site Assesment Began: 4/19/1993  
Pollution Characterization Began: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**PG & E SERVICE CENTER (Continued)**

**S101481146**

Pollution Remediation Plan Submitted: Not reported  
Date Remediation Action Underway: Not reported  
Date Post Remedial Action Monitoring Began: Not reported

Cortese:

Region: CORTESE  
Facility Addr2: 1220 ANDERSEN DR

Region: CORTESE  
Facility Addr2: Not reported

ENVIROSTOR:

Site Type: Evaluation  
Site Type Detailed: Evaluation  
Acres: Not reported  
NPL: NO  
Regulatory Agencies: SMBRP  
Lead Agency: SMBRP  
Program Manager: Not reported  
Supervisor: Barbara Cook  
Division Branch: North Coast  
Facility ID: 21490016  
Site Code: Not reported  
Assembly: 06  
Senate: 03  
Special Program: \* Rural County Survey Program  
Status: Inactive - Needs Evaluation  
Status Date: 1995-03-15 00:00:00  
Restricted Use: NO  
Funding: Responsible Party  
Latitude: 37.9513888888889  
Longitude: -122.4977777777778  
Alias Name: 21490016  
110002721172  
Alias Type: EPA (FRS #)  
Envirostor ID Number

APN: NONE SPECIFIED  
APN Description: Not reported  
Comments: FACILITY IDENTIFIED MARIN COUNTY PLANNING DEPARTMENT - CONTAMINANT:  
PCB'S FACILITY DRIVE-BY PAVED LOT; NO APPARENT PROBLEMSITE  
SCREENING DONE ACTION STATUS RATIONALE: BASED ON FACILITY TYPE AND  
DRIVE-BY.

Completed Info:

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Discovery  
Completed Date: 09/20/89

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Site Screening  
Completed Date: 12/15/89

Confirmed: NONE SPECIFIED  
Confirmed Description: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**PG & E SERVICE CENTER (Continued)**

**S101481146**

Future Area Name: Not reported  
Future Sub Area Name: Not reported  
Future Document Type: Not reported  
Future Due Date: Not reported  
Media Affected: NONE SPECIFIED  
Media Affected Desc: Not reported

Management:

Management Required: NONE SPECIFIED  
Management Required Desc: Not reported  
Potential: 30018  
Potential Description: Polychlorinated biphenyls (PCBs)  
Schedule Area Name: Not reported  
Schedule Sub Area Name: Not reported  
Schedule Document Type: Not reported  
Schedule Due Date: Not reported  
Schedule Revised Date: Not reported  
PastUse: NONE SPECIFIED

**28**  
**East**  
**1/2-1**  
**0.768 mi.**  
**4055 ft.**

**SHORELINE CENTER**  
**111 SHORELINE BLVD.**  
**SAN RAFAEL, CA 94902**

**ENVIROSTOR S101338578**  
**N/A**

**Relative:**  
**Lower**

ENVIROSTOR:

**Actual:**  
**8 ft.**

Site Type: Historical  
Site Type Detailed: \* Historical  
Acres: Not reported  
NPL: NO  
Regulatory Agencies: NONE SPECIFIED  
Lead Agency: NONE SPECIFIED  
Program Manager: Not reported  
Supervisor: Referred - Not Assigned  
Division Branch: North Coast  
Facility ID: 21490031  
Site Code: Not reported  
Assembly: 06  
Senate: 03  
Special Program: Not reported  
Status: Refer: Other Agency  
Status Date: 1994-01-03 00:00:00  
Restricted Use: NO  
Funding: Not reported  
Latitude: 37.9525  
Longitude: -122.496388888889  
Alias Name: 21490031  
Alias Type: Envirostor ID Number  
  
APN: NONE SPECIFIED  
APN Description: Not reported  
Comments: Not reported

Completed Info:

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Site Screening  
Completed Date: 01/03/94

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SHORELINE CENTER (Continued)**

**S101338578**

Confirmed: NONE SPECIFIED  
Confirmed Description: Not reported  
Future Area Name: Not reported  
Future Sub Area Name: Not reported  
Future Document Type: Not reported  
Future Due Date: Not reported  
Media Affected: NONE SPECIFIED  
Media Affected Desc: Not reported

Management:

Management Required: NONE SPECIFIED  
Management Required Desc: Not reported  
Potential: 10076, 10097  
Potential Description: \* Pesticides - Rinse Waters  
Potential Description: \* CONTAMINATED SOIL  
Schedule Area Name: Not reported  
Schedule Sub Area Name: Not reported  
Schedule Document Type: Not reported  
Schedule Due Date: Not reported  
Schedule Revised Date: Not reported  
PastUse: NONE SPECIFIED

**29**  
**East**  
**1/2-1**  
**0.784 mi.**  
**4137 ft.**

**SAN QUENTIN DISPOSAL SITE**  
**1615 EAST FRANCISCO BLVD**  
**SAN RAFAEL, CA 94901**

**HAZNET** **S101481142**  
**SWF/LF** **N/A**  
**ENVIROSTOR**

**Relative:**  
**Lower**

HAZNET:

Gepaid: CAC001201640  
Contact: SAN QUENTIN DISPOSAL CORP  
Telephone: 0000000000  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: PO BOX 2126  
Mailing City,St,Zip: SAN RAFAEL, CA 949122126  
Gen County: Marin  
TSD EPA ID: CAT000646117  
TSD County: Kings  
Waste Category: Other inorganic solid waste  
Disposal Method: Disposal, Injection Well  
Tons: .0000  
Facility County: Marin

**Actual:**  
**8 ft.**

Gepaid: CAC001201640  
Contact: SAN QUENTIN DISPOSAL CORP  
Telephone: 0000000000  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: PO BOX 2126  
Mailing City,St,Zip: SAN RAFAEL, CA 949122126  
Gen County: Marin  
TSD EPA ID: CAT000646117  
TSD County: Kings  
Waste Category: Other inorganic solid waste  
Disposal Method: Disposal, Land Fill  
Tons: 136.6816  
Facility County: Marin

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SAN QUENTIN DISPOSAL SITE (Continued)**

**S101481142**

Gepaid: CAC001201640  
Contact: SAN QUENTIN DISPOSAL CORP  
Telephone: 0000000000  
Facility Addr2: Not reported  
Mailing Name: Not reported  
Mailing Address: PO BOX 2126  
Mailing City,St,Zip: SAN RAFAEL, CA 949122126  
Gen County: Marin  
TSD EPA ID: CAT000646117  
TSD County: Kings  
Waste Category: Other inorganic solid waste  
Disposal Method: Disposal, Land Fill  
Tons: 182.0448  
Facility County: Marin

SWF/LF:

Region: STATE  
Facility ID: 21-AA-0003  
Lat/Long: 37.953610 / -122.490250  
Owner Name: Cal-Pox Inc  
Owner Telephone: 4154578850  
Owner Address: Not reported  
Owner Address2: P.O. Box 1057  
Owner City,St,Zip: Mill Valley, CA 94942  
Operator: Cal-Pox, Inc.  
Operator Phone: 4154578850  
Operator Address: Not reported  
Operator Address2: P.O. Box 2126  
Operator City,St,Zip: San Rafael, CA 94912  
Operator's Status: Closed  
Permit Date: Not reported  
Permit Status: Not reported  
Permitted Acreage: 0.00  
Activity: Solid Waste Disposal Site  
Regulation Status: Surrendered  
Landuse Name: Commercial  
GIS Source: GPS  
Category: Disposal  
Unit Number: 01  
Inspection Frequency: Quarterly  
Accepted Waste: Not reported  
Closure Date: 01/01/88  
Closure Type: Actual  
Disposal Acreage: \$0.00  
Swisnumber: 21-AA-0003  
Issue & Observations: San Rafael, CA 94912  
Program Type: Not reported  
Permitted Throughput with Units: 0  
Actual Throughput with Units: Not reported  
Permitted Capacity with Units: 0  
Remaining Capacity: 0  
Remaining Capacity with Units: Not reported

ENVIROSTOR:

Site Type: Historical  
Site Type Detailed: \* Historical

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SAN QUENTIN DISPOSAL SITE (Continued)**

**S101481142**

Acres: Not reported  
NPL: NO  
Regulatory Agencies: NONE SPECIFIED  
Lead Agency: NONE SPECIFIED  
Program Manager: Not reported  
Supervisor: Referred - Not Assigned  
Division Branch: North Coast  
Facility ID: 21490002  
Site Code: Not reported  
Assembly: Not reported  
Senate: Not reported  
Special Program: \* Rural County Survey Program  
Status: Refer: RWQCB  
Status Date: 1987-09-09 00:00:00  
Restricted Use: NO  
Funding: Not reported  
Latitude: 0  
Longitude: 0  
Alias Name: 21490002  
BAYVIEW BUSINESS PARK (CAR LOTS)  
Alias Type: Alternate Name  
Envirostor ID Number

APN: NONE SPECIFIED  
APN Description: Not reported  
Comments: SITE SCREENING DONE ACTION STATUS RATIONALE: THIS SITE IS RANKED NUMBER 3 ON THE STATE WATER BOARD CALDERON LIST AND THUS IS SCHEDULED FOR REVIEW/ACTION BY THE WATER BOARD. PRELIM ASSESS DONE SITE HAS MOVED FROM RANK 5 CALDERON LIST TO IMMEDIATE MITIGATION. PENDING STATUS WITH FOLLOW UP IN 6 MOS. FACILITY IDENTIFIED DEPARTMENT OF FISH AND GAME CALIFORNIA WASTE MANAGEMENT BOARD 21-AA-0003 (SWIS) CLOSED LANDFILL; OFF-SITE GAS MIGRATION EXPLOSION / FIRE BURNED MEN 06-86 FACILITY DRIVE-BY FACILITY IDENTIFIED MARIN CO HEALTH DEPARTMENT FAIRLY EXTENSIVE FILE FOUND RWQCB SF BAY REGION FAIR EXTENSIVE FILE FOUND DHS TOXICS NCCS NO FILE FOUND SITE SCREENING DONE RATIONALE FOR PA: 1984 ALLEGATION THAT SITE MAY HAVE RECEIVED HAZARDOUS WASTES.

Completed Info:

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Discovery  
Completed Date: 08/27/87

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Discovery  
Completed Date: 06/30/87

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Site Screening  
Completed Date: 12/15/89

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Preliminary Assessment Report  
Completed Date: 08/31/87

Map ID  
 Direction  
 Distance  
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
 EPA ID Number

**SAN QUENTIN DISPOSAL SITE (Continued)**

**S101481142**

Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Site Screening  
 Completed Date: 02/28/87

Confirmed: NONE SPECIFIED  
 Confirmed Description: Not reported  
 Future Area Name: Not reported  
 Future Sub Area Name: Not reported  
 Future Document Type: Not reported  
 Future Due Date: Not reported  
 Media Affected: NONE SPECIFIED  
 Media Affected Desc: Not reported

Management:

Management Required: NONE SPECIFIED  
 Management Required Desc: Not reported  
 Potential: NONE SPECIFIED  
 Potential Description: Not reported  
 Schedule Area Name: Not reported  
 Schedule Sub Area Name: Not reported  
 Schedule Document Type: Not reported  
 Schedule Due Date: Not reported  
 Schedule Revised Date: Not reported  
 PastUse: NONE SPECIFIED

**30**  
**NNW**  
**1/2-1**  
**0.813 mi.**  
**4295 ft.**

**DIESEL ENERGY INCORPORATED**  
**40 WOODLAND AVENUE**  
**SAN RAFAEL, CA 94901**

**ENVIROSTOR S101481137**  
**N/A**

**Relative:**  
**Higher**

ENVIROSTOR:

Site Type: Historical  
 Site Type Detailed: \* Historical  
 Acres: Not reported  
 NPL: NO  
 Regulatory Agencies: NONE SPECIFIED  
 Lead Agency: NONE SPECIFIED  
 Program Manager: Not reported  
 Supervisor: Referred - Not Assigned  
 Division Branch: North Coast  
 Facility ID: 21350001  
 Site Code: Not reported  
 Assembly: 06  
 Senate: 03  
 Special Program: \* Rural County Survey Program  
 Status: Refer: Other Agency  
 Status Date: 1994-07-29 00:00:00  
 Restricted Use: NO  
 Funding: Not reported  
 Latitude: 37.9613888888889  
 Longitude: -122.515277777778  
 Alias Name: A & C AIR AND RADIATOR REPAIR  
 21350001  
 SUMMIT RIDGE PRODUCTS  
 Alias Type: Alternate Name  
 Alternate Name

**Actual:**  
**42 ft.**

Map ID  
 Direction  
 Distance  
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
 EPA ID Number

**DIESEL ENERGY INCORPORATED (Continued)**

**S101481137**

Envirostor ID Number

APN: NONE SPECIFIED  
 APN Description: Not reported  
 Comments: SITE SCREENING DONE ACTION STATUS RATIONALE: DRUMS AND TANKS IN REAR BY DRAINAGE DITCH. POSSIBLE WASTE OIL/SOLVENT CONTAMINATION."FACILITY IDENTIFIED DEPT OF FISH & GAME, REG 3: MISC. FILE"SITE SCREENING DONE PA NEEDS TO ASSESS IF AND TO WHAT EXTENT SITE MAY HAVE BEEN MITIGATED.

Completed Info:

Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Discovery  
 Completed Date: 01/07/87

Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Site Screening  
 Completed Date: 12/15/89

Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Site Screening  
 Completed Date: 01/19/88

Confirmed: NONE SPECIFIED  
 Confirmed Description: Not reported  
 Future Area Name: Not reported  
 Future Sub Area Name: Not reported  
 Future Document Type: Not reported  
 Future Due Date: Not reported  
 Media Affected: NONE SPECIFIED  
 Media Affected Desc: Not reported

Management:

Management Required: NONE SPECIFIED  
 Management Required Desc: Not reported  
 Potential: 10097, 10199  
 Potential Description: \* CONTAMINATED SOIL  
 Potential Description: \* WASTE OIL & MIXED OIL  
 Schedule Area Name: Not reported  
 Schedule Sub Area Name: Not reported  
 Schedule Document Type: Not reported  
 Schedule Due Date: Not reported  
 Schedule Revised Date: Not reported  
 PastUse: NONE SPECIFIED

31  
 East  
 1/2-1  
 0.847 mi.  
 4472 ft.

**GHILOTTI BROTHERS DISPOSAL SITE  
 FRANCISCO BOULEVARD / PELICAN  
 SAN RAFAEL, CA 94901**

**ENVIROSTOR S101481144  
 N/A**

**Relative:  
 Lower**

ENVIROSTOR:  
 Site Type: Historical  
 Site Type Detailed: \* Historical  
 Acres: Not reported  
 NPL: NO

**Actual:  
 8 ft.**

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GHILOTTI BROTHERS DISPOSAL SITE (Continued)**

**S101481144**

Regulatory Agencies: NONE SPECIFIED  
Lead Agency: NONE SPECIFIED  
Program Manager: Not reported  
Supervisor: Referred - Not Assigned  
Division Branch: North Coast  
Facility ID: 21490009  
Site Code: Not reported  
Assembly: 06  
Senate: 03  
Special Program: \* Rural County Survey Program  
Status: Refer: RWQCB  
Status Date: 1989-11-09 00:00:00  
Restricted Use: NO  
Funding: Not reported  
Latitude: 37.9494444444444  
Longitude: -122.492777777778  
Alias Name: 21490009  
Alias Type: Envirostor ID Number

APN: NONE SPECIFIED  
APN Description: Not reported  
Comments: FACILITY IDENTIFIED SWIS (21-AA-0004) CALIFORNIA WASTE MANAGEMENT BOARD CLOSED LANDFILL; SUPPOSEDLY AN INERT MATERIAL/DEMO SITE; RANKED NUMBER 5 ON STATE WRCB CALDERON LISTSITE SCREENING DONE ACTION STATUS RATIONALE: SITE IS PENDING WATER BOARD REVIEW/ACTION.

Completed Info:

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Discovery  
Completed Date: 11/09/89

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Site Screening  
Completed Date: 12/15/89

Confirmed: NONE SPECIFIED  
Confirmed Description: Not reported  
Future Area Name: Not reported  
Future Sub Area Name: Not reported  
Future Document Type: Not reported  
Future Due Date: Not reported  
Media Affected: NONE SPECIFIED  
Media Affected Desc: Not reported

Management:

Management Required: NONE SPECIFIED  
Management Required Desc: Not reported  
Potential: NONE SPECIFIED  
Potential Description: Not reported  
Schedule Area Name: Not reported  
Schedule Sub Area Name: Not reported  
Schedule Document Type: Not reported  
Schedule Due Date: Not reported  
Schedule Revised Date: Not reported  
PastUse: NONE SPECIFIED

Map ID  
 Direction  
 Distance  
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
 EPA ID Number

**D32**  
**NNW**  
**1/2-1**  
**0.895 mi.**  
**4725 ft.**

**GRIESE RADIATOR REPAIR**  
**10 BAXTERS COURT**  
**SAN RAFAEL, CA 94901**

**ENVIROSTOR** **S101481155**  
**N/A**

**Site 1 of 3 in cluster D**

**Relative:**  
**Lower**

ENVIROSTOR:

Site Type: Historical  
 Site Type Detailed: \* Historical  
 Acres: Not reported  
 NPL: NO  
 Regulatory Agencies: NONE SPECIFIED  
 Lead Agency: NONE SPECIFIED  
 Program Manager: Not reported  
 Supervisor: Referred - Not Assigned  
 Division Branch: North Coast  
 Facility ID: 21750005  
 Site Code: Not reported  
 Assembly: 06  
 Senate: 03  
 Special Program: \* Rural County Survey Program  
 Status: Refer: Other Agency  
 Status Date: 1994-06-23 00:00:00  
 Restricted Use: NO  
 Funding: Not reported  
 Latitude: 37.9638888888889  
 Longitude: -122.515  
 Alias Name: LEO B GRIESE  
 21750005  
 Alias Type: Envirostor ID Number  
 Alternate Name

**Actual:**  
**25 ft.**

APN: NONE SPECIFIED  
 APN Description: Not reported  
 Comments: SITE INSP DONE SITE CONTAMINATED WITH HEAVY METALS; FOLLOWUP DEFERRED TO NCCS ENFORCEMENT.FACILITY IDENTIFIED MARIN COUNTY DIRECTORY 1957-1958 SITE SCREENING DONE RATIONALE FOR PA: INDUSTRIAL TYPE AND YEARS OF OPERATION ON LOCATION."PRELIM ASSESS DONE Q MAILED 5/11/87, RESPONSE TAKEN BY PHONE ON 6/8/87. SOURCE ACTIVITY: RADIATOR REPAIR, ENGINE BACK FLUSHING, RADIATOR RECORING AND CLEANING. WASTE TYPE: LIQUID CONTAINING POSSIBLE HEAVY METALS, ETHYLENE GLYCOL &CAUSTICS. ASSESSMENT INDICATED PROBABLE ONSITE DISCH OF WASTE TO GROUND. RECOMMENDATION: COLLECT & ANALYZE SOIL SAMPLES FOR EVIDENCE OF CONTAMINATION."

Completed Info:

Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Discovery  
 Completed Date: 02/24/87

Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Site Inspection Report  
 Completed Date: 11/30/87

Completed Area Name: PROJECT WIDE  
 Completed Sub Area Name: Not reported  
 Completed Document Type: Preliminary Assessment Report  
 Completed Date: 06/01/87

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GRIESE RADIATOR REPAIR (Continued)**

**S101481155**

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Site Screening  
Completed Date: 02/24/87

Confirmed: NONE SPECIFIED  
Confirmed Description: Not reported  
Future Area Name: Not reported  
Future Sub Area Name: Not reported  
Future Document Type: Not reported  
Future Due Date: Not reported  
Media Affected: NONE SPECIFIED  
Media Affected Desc: Not reported

Management:  
Management Required: NONE SPECIFIED  
Management Required Desc: Not reported  
Potential: 10067, 10097, 10193, 20001  
Potential Description: \* OXYGENATED SOLVENTS  
Potential Description: \* CONTAMINATED SOIL  
Potential Description: \* UNSPECIFIED ACID SOLUTION  
Potential Description: \* ALKALINE SOLUTION 2<PH<12.5, WITH METALS  
Schedule Area Name: Not reported  
Schedule Sub Area Name: Not reported  
Schedule Document Type: Not reported  
Schedule Due Date: Not reported  
Schedule Revised Date: Not reported  
PastUse: NONE SPECIFIED

**D33  
NNW  
1/2-1  
0.895 mi.  
4728 ft.**

**WESTERN CHROME PLATING AN  
11 BAXTERS  
SAN RAFAEL, CA 94901**

**Cortese S100948349  
ENVIROSTOR N/A**

**Site 2 of 3 in cluster D**

**Relative:  
Lower**

Cortese:  
Region: CORTESE  
Facility Addr2: Not reported

**Actual:  
25 ft.**

ENVIROSTOR:  
Site Type: Historical  
Site Type Detailed: \* Historical  
Acres: Not reported  
NPL: NO  
Regulatory Agencies: NONE SPECIFIED  
Lead Agency: NONE SPECIFIED  
Program Manager: Not reported  
Supervisor: Referred - Not Assigned  
Division Branch: North Coast  
Facility ID: 21340001  
Site Code: Not reported  
Assembly: 06  
Senate: 03  
Special Program: \* Rural County Survey Program  
Status: Refer: Other Agency  
Status Date: 1996-03-15 00:00:00  
Restricted Use: NO  
Funding: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**WESTERN CHROME PLATING AN (Continued)**

**S100948349**

Latitude: 37.9638888888889  
Longitude: -122.515  
Alias Name: SAN RAFAEL PLATING WORKS  
21340001  
WESTERN PLATING WORKS  
Alias Type: Alternate Name  
Alternate Name  
Envirostor ID Number

APN: NONE SPECIFIED  
APN Description: Not reported  
Comments: SITE INSP DONE SITE CONTAMINATED WITH HEAVY METALS; FOLLOWUP DEFERRED TO NCCS ENFORCEMENT."Preliminary Assessment Done: Questionnaire mailed 05/07/87, received 06/01/87. Source of Activity: Plating and Polish- ing. Waste Type: Liquid & Sludge containing heavy metals, cyanide, TCE, MEK, and/or Acetone. Enforcement History: NotificatFacility Identified: 1965 San Rafael City Directory.Site Screening Done: Recommend Preliminary Assessment based on industrial nature of operation & years of site activity; Waste management practices at the site need to be assessed.ion of Discharge - Non-compliance from Central Marin San Agency (12/17/85). Recommendation: Soil sampling for heavy metals and solvents"

Completed Info:

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Discovery  
Completed Date: 02/10/87

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Site Inspection Report  
Completed Date: 11/30/87

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Preliminary Assessment Report  
Completed Date: 06/01/87

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Site Screening  
Completed Date: 02/24/87

Confirmed: NONE SPECIFIED  
Confirmed Description: Not reported  
Future Area Name: Not reported  
Future Sub Area Name: Not reported  
Future Document Type: Not reported  
Future Due Date: Not reported  
Media Affected: NONE SPECIFIED  
Media Affected Desc: Not reported

Management:

Management Required: NONE SPECIFIED  
Management Required Desc: Not reported  
Potential: 10003, 10097, 10119, 10193, 10194, 10195, 10197, 30108, 30153, 30160, 30407

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**WESTERN CHROME PLATING AN (Continued)**

**S100948349**

Potenital Description: \* HALOGENATED SOLVENTS  
Potenital Description: \* CONTAMINATED SOIL  
Potenital Description: \* ACID SOLUTION 2>PH WITH METALS  
Potenital Description: \* UNSPECIFIED ACID SOLUTION  
Potenital Description: \* UNSPECIFIED ALKALINE SOLUTIONS  
Potenital Description: \* UNSPECIFIED AQUEOUS SOLUTION  
Potenital Description: \* UNSPECIFIED SLUDGE WASTE  
Potenital Description: Cadmium and compounds  
Potenital Description: Chromium VI  
Potenital Description: Cyanide (free)  
Potenital Description: Nickel  
Schedule Area Name: Not reported  
Schedule Sub Area Name: Not reported  
Schedule Document Type: Not reported  
Schedule Due Date: Not reported  
Schedule Revised Date: Not reported  
PastUse: NONE SPECIFIED

**D34  
NNW  
1/2-1  
0.896 mi.  
4733 ft.**

**SPECIFICATION CHROMIUM CO  
14 BAXTERS  
SAN RAFAEL, CA 94901**

**Cortese S101298645  
ENVIROSTOR N/A**

**Site 3 of 3 in cluster D**

**Relative:  
Lower**

Cortese:  
Region: CORTESE  
Facility Addr2: Not reported

**Actual:  
25 ft.**

ENVIROSTOR:  
Site Type: Evaluation  
Site Type Detailed: Evaluation  
Acres: Not reported  
NPL: NO  
Regulatory Agencies: NONE SPECIFIED  
Lead Agency: NONE SPECIFIED  
Program Manager: Not reported  
Supervisor: Barbara Cook  
Division Branch: North Coast  
Facility ID: 21340002  
Site Code: Not reported  
Assembly: 06  
Senate: 03  
Special Program: \* Rural County Survey Program  
Status: Inactive - Needs Evaluation  
Status Date: 1994-06-15 00:00:00  
Restricted Use: NO  
Funding: Not reported  
Latitude: 37.9638888888889  
Longitude: -122.515  
Alias Name: 21340002  
SPEC CHROME  
Alias Type: Alternate Name  
Envirostor ID Number

APN: NONE SPECIFIED  
APN Description: Not reported  
Comments: SITE INSP DONE SITE CONTAMINATED WITH HEAVY METALS; FOLLOWUP

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SPECIFICATION CHROMIUM CO (Continued)**

**S101298645**

DEFERRED TO NCCS ENFORCEMENT."PRELIM ASSESS DONE Q MAILED 5/11/87, RECEIVED 6/87. SOURCE ACTIVITY: PLATING & ANODIZING. WASTE TYPE: LIQUID & SLUDGE CONTAINING HEAVY METALS, CYANDIE AND TCE. ENF HISTORY: NOTIFICATION OF DISCHARGE NONCOMPLIANCE FROM CENTRAL MARIN SAN AGENCY, DATFACILITY IDENTIFIED SAN RAFAEL CITY DIRECTORY - 1965"SITE SCREENING DONE RATIONALE FOR PA: BASED ON THE TYPE AND EXTENT OF INDUSTRIAL ACTIVITY AT THE SITE, AN ASSESSMENT OF CURRENT AND PAST WASTE MANAGEMENT PRACTICES IS NECESSARY."ED 12/17/85. RECOMMENDATION: SOIL SAMPLING TO ASSESS THE PRESENCE OF HEAVY METALS AND TCE."

Completed Info:

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Discovery  
Completed Date: 02/01/87

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Site Inspection Report  
Completed Date: 11/30/87

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Preliminary Assessment Report  
Completed Date: 06/01/87

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Site Screening  
Completed Date: 02/24/87

Confirmed: NONE SPECIFIED  
Confirmed Description: Not reported  
Future Area Name: Not reported  
Future Sub Area Name: Not reported  
Future Document Type: Not reported  
Future Due Date: Not reported  
Media Affected: NONE SPECIFIED  
Media Affected Desc: Not reported

Management:

Management Required: NONE SPECIFIED  
Management Required Desc: Not reported  
Potential: 10003, 10093, 10097, 10119, 10193, 10194, 10195, 10197, 30108, 30153, 30160, 30407

Potenital Description: \* HALOGENATED SOLVENTS  
Potenital Description: \* AQUEOUS SOLUTION WITH METALS  
Potenital Description: \* CONTAMINATED SOIL  
Potenital Description: \* ACID SOLUTION 2>PH WITH METALS  
Potenital Description: \* UNSPECIFIED ACID SOLUTION  
Potenital Description: \* UNSPECIFIED ALKALINE SOLUTIONS  
Potenital Description: \* UNSPECIFIED AQUEOUS SOLUTION  
Potenital Description: \* UNSPECIFIED SLUDGE WASTE  
Potenital Description: Cadmium and compounds  
Potenital Description: Chromium VI  
Potenital Description: Cyanide (free)  
Potenital Description: Nickel

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SPECIFICATION CHROMIUM CO (Continued)**

**S101298645**

Schedule Area Name: Not reported  
Schedule Sub Area Name: Not reported  
Schedule Document Type: Not reported  
Schedule Due Date: Not reported  
Schedule Revised Date: Not reported  
PastUse: NONE SPECIFIED

**35**  
**East**  
**1/2-1**  
**0.923 mi.**  
**4873 ft.**

**BAYVIEW BUSINESS PARK**  
**PELICAN WAY / KERNER AVENUE**  
**SAN RAFAEL, CA 94901**

**ENVIROSTOR S100185584**  
**N/A**

**Relative:**  
**Lower**

**ENVIROSTOR:**

**Actual:**  
**8 ft.**

Site Type: Historical  
Site Type Detailed: \* Historical  
Acres: Not reported  
NPL: NO  
Regulatory Agencies: NONE SPECIFIED  
Lead Agency: NONE SPECIFIED  
Program Manager: Not reported  
Supervisor: Referred - Not Assigned  
Division Branch: North Coast  
Facility ID: 21490001  
Site Code: Not reported  
Assembly: 06  
Senate: 03  
Special Program: \* Rural County Survey Program  
Status: Refer: RWQCB  
Status Date: 1987-05-01 00:00:00  
Restricted Use: NO  
Funding: Not reported  
Latitude: 37.9519444444444  
Longitude: -122.494722222222  
Alias Name: 21490001  
Alias Type: Envirostor ID Number  
  
APN: NONE SPECIFIED  
APN Description: Not reported  
Comments: SITE SCREENING DONE ACTION STATUS RATIONALE: SITE IS FORMER LANDFILL AND IS PENDING WATER BOARD REVIEW/ACTION.SITE SCREENING DONE RATIONALE FOR PA: 1984 ALLEGATION THAT SITE MAY HAVE RECEIVED HAZARDOUS WASTES.PRELIM ASSESS DONE SITE IS A FORMER LANDFILL CURR BEING DEVELOP AS A BUSINESS PARK. MONITORING PROGRAM NEVER IMPLEMENTED.

**Completed Info:**

Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Site Screening  
Completed Date: 12/22/89  
  
Completed Area Name: PROJECT WIDE  
Completed Sub Area Name: Not reported  
Completed Document Type: Preliminary Assessment Report  
Completed Date: 05/01/87  
  
Completed Area Name: PROJECT WIDE

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**BAYVIEW BUSINESS PARK (Continued)**

**S100185584**

Completed Sub Area Name: Not reported  
Completed Document Type: Site Screening  
Completed Date: 02/24/87

Confirmed: NONE SPECIFIED  
Confirmed Description: Not reported  
Future Area Name: Not reported  
Future Sub Area Name: Not reported  
Future Document Type: Not reported  
Future Due Date: Not reported  
Media Affected: NONE SPECIFIED  
Media Affected Desc: Not reported

Management:

Management Required: NONE SPECIFIED  
Management Required Desc: Not reported  
Potential: 10097, 10198, 20011  
Potential Description: \* CONTAMINATED SOIL  
Potential Description: \* UNSPECIFIED SOLVENT MIXTURES  
Potential Description: \* OTHER INORGANIC SOLID WASTE  
Schedule Area Name: Not reported  
Schedule Sub Area Name: Not reported  
Schedule Document Type: Not reported  
Schedule Due Date: Not reported  
Schedule Revised Date: Not reported  
PastUse: NONE SPECIFIED

## ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
CORTE MADERA	U003975056	VILLAGE PUMP STATION (TOWN OF CM) NWRR	INDUSTRIAL WAY (END OF)	94904	UST
CORTE MADERA	U003975003	SHOREBIRD MARSH PUMP STATION (TOWN OF CM)	INDUSTRIAL WAY (END OF)	94904	UST
CORTE MADERA	S101481141	CORTE MADERA NELLIN AVE. CONNECTOR	NELLIN AVE AT TAMAL VISTA DR.	94925	ENVIROSTOR
GREENBRAE	U003981296	L.G. BRIEMIER INC.	20 CORTE MOTRADA	94904	UST
GREENBRAE	U003914653	MELLOW MOTORS	46A INDUSTRIAL WAY	94904	UST
KENTFIELD	U003982176	BOYCE RESIDENCE	19 MEADOW WAY	94904	UST
LARKSPUR	8719815	LARKSPUR FERRY LANDING	LARKSPUR FERRY LANDING		ERNS
LARKSPUR	2001558257	LARKSPUR FERRY TERMINAL	LARKSPUR FERRY TERMINAL	94939	ERNS
LARKSPUR	1010628232	LARKSPUR FERRY CHANNEL	EAST OF LARKSPUR (APPROX 0.5 MILES OFF SHORE)	94939	ICIS
LARKSPUR	1007128876	LARKSPUR FERRY CHANNEL	EAST OF LARKSPUR (APPROX 0.5 MILES OFF SHORE)	94939	FINDS
LARKSPUR	S101481147	LARKSPUR DISPOSAL SITE	PIPER PARK ON DOHERTY DRIVE	94939	ENVIROSTOR
LARKSPUR	S103976257	MARIN COUNTY HAZARDOUS WASTE PROGRAM	REDWOOD HIGH SCHOOL	94939	HAZNET
LARKSPUR	94415857	101 SIR FRANCIS DRAKE BLVD/LARKSPUR FERRY TERMINAL	101 SIR FRANCIS DRAKE BLVD/LARKSPUR FERRY TERMINAL		ERNS
LARKSPUR	S106920875	GOLDEN GATE FERRY	101 E SIR FRANCIS DRAK BLVD	94939	AIRS
LARKSPUR	92296074	101 E SIR FRANCIS DRAKE BLVD/LARKSPUR FERRY TERMINAL	101 E SIR FRANCIS DRAKE BLVD/LARKSPUR FERRY TERMINAL	94939	ERNS
LARKSPUR	U001600189	BENJIE PICARD/KATHY KOTULAK	295 SIR FRANCIS DRAKE	94939	HIST UST
LARKSPUR	S104894712	SHELL SERVICE STATION	295 SIR FRANCIS DRAKE BLVD	94939	Cortese, SWEEPS UST
LARKSPUR	S101588519	SHELL	295 SIR FRANCIS DRAKE	94939	HAZNET, CA FID UST
MARIN COUNTY	S105632050		US 101 EST BLYTHEDALE EXIT		CHMIRS, SLIC
SAN FRANCISCO	S106568308	SAN FRANCISCO ENERGY COGENERATION PLANT	INNES AVE. BETWEEN FITCH / EARL STS.	94901	VCP, ENVIROSTOR
SAN QUENTIN	1000128946	SAN QUENTIN STATE PRISON	PLANT OPERATIONS DEPT	94964	RCRA-SQG, FINDS, CHMIRS, CA FID UST, HIST UST, SWEEPS UST, ENVIROSTOR
SAN QUENTIN	S107737261	SAN QUENTIN CONDEMNED INMATE COMPLEX	SAN QUENTIN STATE PRISON	94964	VCP, ENVIROSTOR
SAN RAFAEL	1003878930	PG&E GAS PLANT SAN RAFAEL 104 5A	4TH & A STS	94901	CERC-NFRAP
SAN RAFAEL	S100538673	BAXTERS COURT AREA	BAXTERS COURT	94901	RESPONSE, ENVIROSTOR
SAN RAFAEL	S101481151	BELLAM BOULEVARD LANDFILL	BELLAM BOULEVARD (AT THE END OF)	94901	ENVIROSTOR
SAN RAFAEL	1003878927	PG&E GAS PLANT SAN RAFAEL 104 5	SW COR 3RD & LINDERO STS	94901	CERC-NFRAP
SAN RAFAEL	1000251095	PACIFIC BELL	GREENBRAE INTRCH US HWY 101	94904	RCRA-SQG, FINDS
SAN RAFAEL	S107616203	PG&E SAN RAFAEL FORMER MGP	SECOND STREET AND LINDARO STREET	94901	DEED, VCP, ENVIROSTOR
SAN RAFAEL	1003879412	CAPTAINS COVE	SMITH RANCH RD & GALLINA CREEK	94901	CERC-NFRAP
SAN RAFAEL	S106234959	MARIN BOAT HOUSE	115 THIRD STREET	94901	SLIC
SAN RAFAEL	S106234952	MARIN/SONOMA MOSQUITO (FORMER)	201 THIRD ST	94901	SLIC

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Number of Days to Update:** Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

## **FEDERAL RECORDS**

### **NPL: National Priority List**

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 01/31/2008	Source: EPA
Date Data Arrived at EDR: 02/08/2008	Telephone: N/A
Date Made Active in Reports: 03/17/2008	Last EDR Contact: 04/28/2008
Number of Days to Update: 38	Next Scheduled EDR Contact: 07/28/2008
	Data Release Frequency: Quarterly

### **NPL Site Boundaries**

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)  
Telephone: 202-564-7333

EPA Region 1  
Telephone 617-918-1143

EPA Region 6  
Telephone: 214-655-6659

EPA Region 3  
Telephone 215-814-5418

EPA Region 7  
Telephone: 913-551-7247

EPA Region 4  
Telephone 404-562-8033

EPA Region 8  
Telephone: 303-312-6774

EPA Region 5  
Telephone 312-886-6686

EPA Region 9  
Telephone: 415-947-4246

EPA Region 10  
Telephone 206-553-8665

### **Proposed NPL: Proposed National Priority List Sites**

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 01/31/2008	Source: EPA
Date Data Arrived at EDR: 02/04/2008	Telephone: N/A
Date Made Active in Reports: 03/17/2008	Last EDR Contact: 04/28/2008
Number of Days to Update: 42	Next Scheduled EDR Contact: 07/28/2008
	Data Release Frequency: Quarterly

### **DELISTED NPL: National Priority List Deletions**

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 01/31/2008	Source: EPA
Date Data Arrived at EDR: 02/08/2008	Telephone: N/A
Date Made Active in Reports: 03/17/2008	Last EDR Contact: 04/28/2008
Number of Days to Update: 38	Next Scheduled EDR Contact: 07/28/2008
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **NPL LIENS:** Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 02/19/2008
Number of Days to Update: 56	Next Scheduled EDR Contact: 05/19/2008
	Data Release Frequency: No Update Planned

## **CERCLIS:** Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 01/09/2008	Source: EPA
Date Data Arrived at EDR: 02/05/2008	Telephone: 703-412-9810
Date Made Active in Reports: 02/20/2008	Last EDR Contact: 04/25/2008
Number of Days to Update: 15	Next Scheduled EDR Contact: 06/16/2008
	Data Release Frequency: Quarterly

## **CERCLIS-NFRAP:** CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 12/03/2007	Source: EPA
Date Data Arrived at EDR: 12/06/2007	Telephone: 703-412-9810
Date Made Active in Reports: 02/20/2008	Last EDR Contact: 03/17/2008
Number of Days to Update: 76	Next Scheduled EDR Contact: 06/16/2008
	Data Release Frequency: Quarterly

## **LIENS 2:** CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/08/2008	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/07/2008	Telephone: 202-564-6023
Date Made Active in Reports: 03/20/2008	Last EDR Contact: 02/15/2008
Number of Days to Update: 13	Next Scheduled EDR Contact: 05/19/2008
	Data Release Frequency: Varies

## **CORRACTS:** Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/26/2008	Source: EPA
Date Data Arrived at EDR: 04/02/2008	Telephone: 800-424-9346
Date Made Active in Reports: 05/06/2008	Last EDR Contact: 03/03/2008
Number of Days to Update: 34	Next Scheduled EDR Contact: 06/02/2008
	Data Release Frequency: Quarterly

## **RCRA-TSDF:** RCRA - Transporters, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/06/2008  
Date Data Arrived at EDR: 03/06/2008  
Date Made Active in Reports: 04/18/2008  
Number of Days to Update: 43

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 03/06/2008  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: Quarterly

## **RCRA-LQG:** RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/06/2008  
Date Data Arrived at EDR: 03/06/2008  
Date Made Active in Reports: 04/18/2008  
Number of Days to Update: 43

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 03/06/2008  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: Quarterly

## **RCRA-SQG:** RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/06/2008  
Date Data Arrived at EDR: 03/06/2008  
Date Made Active in Reports: 04/18/2008  
Number of Days to Update: 43

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 03/06/2008  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: Quarterly

## **RCRA-CESQG:** RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/06/2008  
Date Data Arrived at EDR: 03/06/2008  
Date Made Active in Reports: 04/18/2008  
Number of Days to Update: 43

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 03/06/2008  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: Varies

## **RCRA-NonGen:** RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/06/2008  
Date Data Arrived at EDR: 03/06/2008  
Date Made Active in Reports: 04/18/2008  
Number of Days to Update: 43

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 03/06/2008  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **US ENG CONTROLS:** Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 01/18/2008	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/31/2008	Telephone: 703-603-0695
Date Made Active in Reports: 03/17/2008	Last EDR Contact: 03/31/2008
Number of Days to Update: 46	Next Scheduled EDR Contact: 06/30/2008
	Data Release Frequency: Varies

## **US INST CONTROL:** Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 01/18/2008	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/31/2008	Telephone: 703-603-0695
Date Made Active in Reports: 03/17/2008	Last EDR Contact: 03/31/2008
Number of Days to Update: 46	Next Scheduled EDR Contact: 06/30/2008
	Data Release Frequency: Varies

## **ERNS:** Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2007	Source: National Response Center, United States Coast Guard
Date Data Arrived at EDR: 01/23/2008	Telephone: 202-267-2180
Date Made Active in Reports: 03/17/2008	Last EDR Contact: 04/22/2008
Number of Days to Update: 54	Next Scheduled EDR Contact: 07/21/2008
	Data Release Frequency: Annually

## **HMIRS:** Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 10/31/2007	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 01/17/2008	Telephone: 202-366-4555
Date Made Active in Reports: 03/17/2008	Last EDR Contact: 04/16/2008
Number of Days to Update: 60	Next Scheduled EDR Contact: 07/14/2008
	Data Release Frequency: Annually

## **DOT OPS:** Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 02/14/2008	Source: Department of Transportation, Office of Pipeline Safety
Date Data Arrived at EDR: 02/27/2008	Telephone: 202-366-4595
Date Made Active in Reports: 03/20/2008	Last EDR Contact: 02/27/2008
Number of Days to Update: 22	Next Scheduled EDR Contact: 05/26/2008
	Data Release Frequency: Varies

## **CDL:** Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/01/2007  
Date Data Arrived at EDR: 12/03/2007  
Date Made Active in Reports: 12/28/2007  
Number of Days to Update: 25

Source: Drug Enforcement Administration  
Telephone: 202-307-1000  
Last EDR Contact: 03/28/2008  
Next Scheduled EDR Contact: 06/23/2008  
Data Release Frequency: Quarterly

## **US BROWNFIELDS:** A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 01/03/2008  
Date Data Arrived at EDR: 01/17/2008  
Date Made Active in Reports: 02/20/2008  
Number of Days to Update: 34

Source: Environmental Protection Agency  
Telephone: 202-566-2777  
Last EDR Contact: 04/30/2008  
Next Scheduled EDR Contact: 07/14/2008  
Data Release Frequency: Semi-Annually

## **DOD:** Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 11/10/2006  
Date Made Active in Reports: 01/11/2007  
Number of Days to Update: 62

Source: USGS  
Telephone: 703-692-8801  
Last EDR Contact: 02/08/2008  
Next Scheduled EDR Contact: 05/05/2008  
Data Release Frequency: Semi-Annually

## **FUDS:** Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2006  
Date Data Arrived at EDR: 08/31/2007  
Date Made Active in Reports: 10/11/2007  
Number of Days to Update: 41

Source: U.S. Army Corps of Engineers  
Telephone: 202-528-4285  
Last EDR Contact: 04/03/2008  
Next Scheduled EDR Contact: 06/30/2008  
Data Release Frequency: Varies

## **LUCIS:** Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005  
Date Data Arrived at EDR: 12/11/2006  
Date Made Active in Reports: 01/11/2007  
Number of Days to Update: 31

Source: Department of the Navy  
Telephone: 843-820-7326  
Last EDR Contact: 03/10/2008  
Next Scheduled EDR Contact: 06/09/2008  
Data Release Frequency: Varies

## **CONSENT:** Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/01/2007  
Date Data Arrived at EDR: 12/03/2007  
Date Made Active in Reports: 12/28/2007  
Number of Days to Update: 25

Source: Department of Justice, Consent Decree Library  
Telephone: Varies  
Last EDR Contact: 04/22/2008  
Next Scheduled EDR Contact: 07/21/2008  
Data Release Frequency: Varies

## **ROD:** Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 01/14/2008  
Date Data Arrived at EDR: 01/22/2008  
Date Made Active in Reports: 01/30/2008  
Number of Days to Update: 8

Source: EPA  
Telephone: 703-416-0223  
Last EDR Contact: 03/31/2008  
Next Scheduled EDR Contact: 06/30/2008  
Data Release Frequency: Annually

## **UMTRA:** Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 07/13/2007  
Date Data Arrived at EDR: 12/03/2007  
Date Made Active in Reports: 01/24/2008  
Number of Days to Update: 52

Source: Department of Energy  
Telephone: 505-845-0011  
Last EDR Contact: 03/17/2008  
Next Scheduled EDR Contact: 06/16/2008  
Data Release Frequency: Varies

## **ODI:** Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985  
Date Data Arrived at EDR: 08/09/2004  
Date Made Active in Reports: 09/17/2004  
Number of Days to Update: 39

Source: Environmental Protection Agency  
Telephone: 800-424-9346  
Last EDR Contact: 06/09/2004  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## **DEBRIS REGION 9:** Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 12/28/2007  
Date Data Arrived at EDR: 12/28/2007  
Date Made Active in Reports: 01/24/2008  
Number of Days to Update: 27

Source: EPA, Region 9  
Telephone: 415-972-3336  
Last EDR Contact: 03/24/2008  
Next Scheduled EDR Contact: 06/23/2008  
Data Release Frequency: Varies

## **MINES:** Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/07/2008  
Date Data Arrived at EDR: 03/26/2008  
Date Made Active in Reports: 04/18/2008  
Number of Days to Update: 23

Source: Department of Labor, Mine Safety and Health Administration  
Telephone: 303-231-5959  
Last EDR Contact: 03/26/2008  
Next Scheduled EDR Contact: 06/23/2008  
Data Release Frequency: Semi-Annually

## **TRIS:** Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2006  
Date Data Arrived at EDR: 02/29/2008  
Date Made Active in Reports: 04/18/2008  
Number of Days to Update: 49

Source: EPA  
Telephone: 202-566-0250  
Last EDR Contact: 02/29/2008  
Next Scheduled EDR Contact: 06/16/2008  
Data Release Frequency: Annually

## **TSCA: Toxic Substances Control Act**

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002  
Date Data Arrived at EDR: 04/14/2006  
Date Made Active in Reports: 05/30/2006  
Number of Days to Update: 46

Source: EPA  
Telephone: 202-260-5521  
Last EDR Contact: 04/28/2008  
Next Scheduled EDR Contact: 07/14/2008  
Data Release Frequency: Every 4 Years

**FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)**  
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 01/15/2008  
Date Data Arrived at EDR: 01/22/2008  
Date Made Active in Reports: 01/30/2008  
Number of Days to Update: 8

Source: EPA/Office of Prevention, Pesticides and Toxic Substances  
Telephone: 202-566-1667  
Last EDR Contact: 03/17/2008  
Next Scheduled EDR Contact: 06/16/2008  
Data Release Frequency: Quarterly

**FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)**  
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 01/15/2008  
Date Data Arrived at EDR: 01/22/2008  
Date Made Active in Reports: 01/30/2008  
Number of Days to Update: 8

Source: EPA  
Telephone: 202-566-1667  
Last EDR Contact: 03/17/2008  
Next Scheduled EDR Contact: 06/16/2008  
Data Release Frequency: Quarterly

## **HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing**

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006  
Date Data Arrived at EDR: 03/01/2007  
Date Made Active in Reports: 04/10/2007  
Number of Days to Update: 40

Source: Environmental Protection Agency  
Telephone: 202-564-2501  
Last EDR Contact: 12/17/2007  
Next Scheduled EDR Contact: 03/17/2008  
Data Release Frequency: No Update Planned

## **HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing**

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/19/2006  
Date Data Arrived at EDR: 03/01/2007  
Date Made Active in Reports: 04/10/2007  
Number of Days to Update: 40

Source: Environmental Protection Agency  
Telephone: 202-564-2501  
Last EDR Contact: 12/17/2008  
Next Scheduled EDR Contact: 03/17/2008  
Data Release Frequency: No Update Planned

## **SSTS:** Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2006  
Date Data Arrived at EDR: 03/14/2008  
Date Made Active in Reports: 04/18/2008  
Number of Days to Update: 35

Source: EPA  
Telephone: 202-564-4203  
Last EDR Contact: 04/14/2008  
Next Scheduled EDR Contact: 07/14/2008  
Data Release Frequency: Annually

## **ICIS:** Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 02/28/2008  
Date Data Arrived at EDR: 03/18/2008  
Date Made Active in Reports: 05/06/2008  
Number of Days to Update: 49

Source: Environmental Protection Agency  
Telephone: 202-564-5088  
Last EDR Contact: 04/14/2008  
Next Scheduled EDR Contact: 07/14/2008  
Data Release Frequency: Quarterly

## **PADS:** PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 12/04/2007  
Date Data Arrived at EDR: 02/07/2008  
Date Made Active in Reports: 03/17/2008  
Number of Days to Update: 39

Source: EPA  
Telephone: 202-566-0500  
Last EDR Contact: 02/07/2008  
Next Scheduled EDR Contact: 05/05/2008  
Data Release Frequency: Annually

## **MLTS:** Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 01/15/2008  
Date Data Arrived at EDR: 02/07/2008  
Date Made Active in Reports: 03/17/2008  
Number of Days to Update: 39

Source: Nuclear Regulatory Commission  
Telephone: 301-415-7169  
Last EDR Contact: 03/31/2008  
Next Scheduled EDR Contact: 06/30/2008  
Data Release Frequency: Quarterly

## **RADINFO:** Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/29/2008  
Date Data Arrived at EDR: 01/31/2008  
Date Made Active in Reports: 03/17/2008  
Number of Days to Update: 46

Source: Environmental Protection Agency  
Telephone: 202-343-9775  
Last EDR Contact: 05/01/2008  
Next Scheduled EDR Contact: 07/28/2008  
Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **FINDS:** Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/03/2008	Source: EPA
Date Data Arrived at EDR: 04/08/2008	Telephone: (415) 947-8000
Date Made Active in Reports: 05/06/2008	Last EDR Contact: 03/31/2008
Number of Days to Update: 28	Next Scheduled EDR Contact: 06/30/2008
	Data Release Frequency: Quarterly

## **RAATS:** RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995	Source: EPA
Date Data Arrived at EDR: 07/03/1995	Telephone: 202-564-4104
Date Made Active in Reports: 08/07/1995	Last EDR Contact: 03/03/2008
Number of Days to Update: 35	Next Scheduled EDR Contact: 06/02/2008
	Data Release Frequency: No Update Planned

## **BRS:** Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2005	Source: EPA/NTIS
Date Data Arrived at EDR: 03/06/2007	Telephone: 800-424-9346
Date Made Active in Reports: 04/13/2007	Last EDR Contact: 03/13/2008
Number of Days to Update: 38	Next Scheduled EDR Contact: 06/09/2008
	Data Release Frequency: Biennially

## **STATE AND LOCAL RECORDS**

### **HIST CAL-SITES:** Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005	Source: Department of Toxic Substance Control
Date Data Arrived at EDR: 08/03/2006	Telephone: 916-323-3400
Date Made Active in Reports: 08/24/2006	Last EDR Contact: 02/25/2008
Number of Days to Update: 21	Next Scheduled EDR Contact: 05/26/2008
	Data Release Frequency: No Update Planned

### **CA BOND EXP. PLAN:** Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989	Source: Department of Health Services
Date Data Arrived at EDR: 07/27/1994	Telephone: 916-255-2118
Date Made Active in Reports: 08/02/1994	Last EDR Contact: 05/31/1994
Number of Days to Update: 6	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **SCH:** School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 02/26/2008	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 02/27/2008	Telephone: 916-323-3400
Date Made Active in Reports: 03/27/2008	Last EDR Contact: 02/27/2008
Number of Days to Update: 29	Next Scheduled EDR Contact: 02/25/2008
	Data Release Frequency: Quarterly

## **TOXIC PITS:** Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995	Source: State Water Resources Control Board
Date Data Arrived at EDR: 08/30/1995	Telephone: 916-227-4364
Date Made Active in Reports: 09/26/1995	Last EDR Contact: 04/28/2008
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/28/2008
	Data Release Frequency: No Update Planned

## **SWF/LF (SWIS):** Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 03/10/2008	Source: Integrated Waste Management Board
Date Data Arrived at EDR: 03/12/2008	Telephone: 916-341-6320
Date Made Active in Reports: 04/14/2008	Last EDR Contact: 03/12/2008
Number of Days to Update: 33	Next Scheduled EDR Contact: 06/09/2008
	Data Release Frequency: Quarterly

## **WMUDS/SWAT:** Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000	Source: State Water Resources Control Board
Date Data Arrived at EDR: 04/10/2000	Telephone: 916-227-4448
Date Made Active in Reports: 05/10/2000	Last EDR Contact: 03/03/2008
Number of Days to Update: 30	Next Scheduled EDR Contact: 06/02/2008
	Data Release Frequency: Quarterly

## **CA WDS:** Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/20/2007	Telephone: 916-341-5227
Date Made Active in Reports: 06/29/2007	Last EDR Contact: 03/17/2008
Number of Days to Update: 9	Next Scheduled EDR Contact: 06/16/2008
	Data Release Frequency: Quarterly

## **CORTESE:** "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/01/2001  
Date Data Arrived at EDR: 05/29/2001  
Date Made Active in Reports: 07/26/2001  
Number of Days to Update: 58

Source: CAL EPA/Office of Emergency Information  
Telephone: 916-323-3400  
Last EDR Contact: 04/21/2008  
Next Scheduled EDR Contact: 07/21/2008  
Data Release Frequency: No Update Planned

## **SWRCY:** Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 04/07/2008  
Date Data Arrived at EDR: 04/09/2008  
Date Made Active in Reports: 05/06/2008  
Number of Days to Update: 27

Source: Department of Conservation  
Telephone: 916-323-3836  
Last EDR Contact: 04/09/2008  
Next Scheduled EDR Contact: 07/07/2008  
Data Release Frequency: Quarterly

## **LUST REG 9:** Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001  
Date Data Arrived at EDR: 04/23/2001  
Date Made Active in Reports: 05/21/2001  
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)  
Telephone: 858-637-5595  
Last EDR Contact: 04/14/2008  
Next Scheduled EDR Contact: 07/14/2008  
Data Release Frequency: No Update Planned

## **LUST REG 8:** Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005  
Date Data Arrived at EDR: 02/15/2005  
Date Made Active in Reports: 03/28/2005  
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)  
Telephone: 909-782-4496  
Last EDR Contact: 05/05/2008  
Next Scheduled EDR Contact: 08/04/2008  
Data Release Frequency: Varies

## **LUST REG 6V:** Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005  
Date Data Arrived at EDR: 06/07/2005  
Date Made Active in Reports: 06/29/2005  
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)  
Telephone: 760-241-7365  
Last EDR Contact: 03/31/2008  
Next Scheduled EDR Contact: 06/30/2008  
Data Release Frequency: No Update Planned

## **LUST REG 6L:** Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003  
Date Data Arrived at EDR: 09/10/2003  
Date Made Active in Reports: 10/07/2003  
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)  
Telephone: 530-542-5572  
Last EDR Contact: 03/03/2008  
Next Scheduled EDR Contact: 06/02/2008  
Data Release Frequency: No Update Planned

## **LUST REG 5:** Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 04/01/2008  
Date Data Arrived at EDR: 04/23/2008  
Date Made Active in Reports: 05/06/2008  
Number of Days to Update: 13

Source: California Regional Water Quality Control Board Central Valley Region (5)  
Telephone: 916-464-4834  
Last EDR Contact: 04/23/2008  
Next Scheduled EDR Contact: 06/30/2008  
Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004	Source: California Regional Water Quality Control Board Los Angeles Region (4)
Date Data Arrived at EDR: 09/07/2004	Telephone: 213-576-6710
Date Made Active in Reports: 10/12/2004	Last EDR Contact: 03/24/2008
Number of Days to Update: 35	Next Scheduled EDR Contact: 06/23/2008
	Data Release Frequency: No Update Planned

## LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003	Source: California Regional Water Quality Control Board Central Coast Region (3)
Date Data Arrived at EDR: 05/19/2003	Telephone: 805-542-4786
Date Made Active in Reports: 06/02/2003	Last EDR Contact: 02/11/2008
Number of Days to Update: 14	Next Scheduled EDR Contact: 05/12/2008
	Data Release Frequency: No Update Planned

## LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004	Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Date Data Arrived at EDR: 10/20/2004	Telephone: 510-622-2433
Date Made Active in Reports: 11/19/2004	Last EDR Contact: 04/07/2008
Number of Days to Update: 30	Next Scheduled EDR Contact: 07/07/2008
	Data Release Frequency: Quarterly

## LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001	Source: California Regional Water Quality Control Board North Coast (1)
Date Data Arrived at EDR: 02/28/2001	Telephone: 707-570-3769
Date Made Active in Reports: 03/29/2001	Last EDR Contact: 02/19/2008
Number of Days to Update: 29	Next Scheduled EDR Contact: 05/19/2008
	Data Release Frequency: No Update Planned

## LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 04/08/2008	Source: State Water Resources Control Board
Date Data Arrived at EDR: 04/09/2008	Telephone: see region list
Date Made Active in Reports: 05/06/2008	Last EDR Contact: 04/09/2008
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/07/2008
	Data Release Frequency: Quarterly

## LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004	Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Date Data Arrived at EDR: 02/26/2004	Telephone: 760-776-8943
Date Made Active in Reports: 03/24/2004	Last EDR Contact: 02/19/2008
Number of Days to Update: 27	Next Scheduled EDR Contact: 05/19/2008
	Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 09/05/1995	Telephone: 916-341-5851
Date Made Active in Reports: 09/29/1995	Last EDR Contact: 12/28/1998
Number of Days to Update: 24	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

## SLIC: Statewide SLIC Cases

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/08/2008	Source: State Water Resources Control Board
Date Data Arrived at EDR: 04/09/2008	Telephone: 866-480-1028
Date Made Active in Reports: 05/06/2008	Last EDR Contact: 01/09/2008
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/07/2008
	Data Release Frequency: Varies

## SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003	Source: California Regional Water Quality Control Board, North Coast Region (1)
Date Data Arrived at EDR: 04/07/2003	Telephone: 707-576-2220
Date Made Active in Reports: 04/25/2003	Last EDR Contact: 02/19/2008
Number of Days to Update: 18	Next Scheduled EDR Contact: 05/19/2008
	Data Release Frequency: No Update Planned

## SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004	Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Date Data Arrived at EDR: 10/20/2004	Telephone: 510-286-0457
Date Made Active in Reports: 11/19/2004	Last EDR Contact: 04/07/2008
Number of Days to Update: 30	Next Scheduled EDR Contact: 04/07/2008
	Data Release Frequency: Quarterly

## SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006	Source: California Regional Water Quality Control Board Central Coast Region (3)
Date Data Arrived at EDR: 05/18/2006	Telephone: 805-549-3147
Date Made Active in Reports: 06/15/2006	Last EDR Contact: 02/11/2008
Number of Days to Update: 28	Next Scheduled EDR Contact: 05/12/2008
	Data Release Frequency: Semi-Annually

## SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004	Source: Region Water Quality Control Board Los Angeles Region (4)
Date Data Arrived at EDR: 11/18/2004	Telephone: 213-576-6600
Date Made Active in Reports: 01/04/2005	Last EDR Contact: 04/21/2008
Number of Days to Update: 47	Next Scheduled EDR Contact: 07/21/2008
	Data Release Frequency: Varies

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### **SLIC REG 5:** Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005  
Date Data Arrived at EDR: 04/05/2005  
Date Made Active in Reports: 04/21/2005  
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)  
Telephone: 916-464-3291  
Last EDR Contact: 03/31/2008  
Next Scheduled EDR Contact: 06/30/2008  
Data Release Frequency: Semi-Annually

### **SLIC REG 6V:** Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005  
Date Data Arrived at EDR: 05/25/2005  
Date Made Active in Reports: 06/16/2005  
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch  
Telephone: 619-241-6583  
Last EDR Contact: 03/31/2008  
Next Scheduled EDR Contact: 06/30/2008  
Data Release Frequency: Semi-Annually

### **SLIC REG 6L:** SLIC Sites

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004  
Date Data Arrived at EDR: 09/07/2004  
Date Made Active in Reports: 10/12/2004  
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region  
Telephone: 530-542-5574  
Last EDR Contact: 03/03/2008  
Next Scheduled EDR Contact: 06/02/2008  
Data Release Frequency: No Update Planned

### **SLIC REG 7:** SLIC List

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004  
Date Data Arrived at EDR: 11/29/2004  
Date Made Active in Reports: 01/04/2005  
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region  
Telephone: 760-346-7491  
Last EDR Contact: 03/03/2008  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: No Update Planned

### **SLIC REG 8:** Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008  
Date Data Arrived at EDR: 04/03/2008  
Date Made Active in Reports: 04/14/2008  
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)  
Telephone: 951-782-3298  
Last EDR Contact: 03/31/2008  
Next Scheduled EDR Contact: 06/30/2008  
Data Release Frequency: Semi-Annually

### **SLIC REG 9:** Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007  
Date Data Arrived at EDR: 09/11/2007  
Date Made Active in Reports: 09/28/2007  
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)  
Telephone: 858-467-2980  
Last EDR Contact: 02/25/2008  
Next Scheduled EDR Contact: 05/26/2008  
Data Release Frequency: Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **UST:** Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 04/08/2008	Source: SWRCB
Date Data Arrived at EDR: 04/09/2008	Telephone: 916-480-1028
Date Made Active in Reports: 05/01/2008	Last EDR Contact: 04/09/2008
Number of Days to Update: 22	Next Scheduled EDR Contact: 07/07/2008
	Data Release Frequency: Semi-Annually

## **UST MENDOCINO:** Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 03/24/2008	Source: Department of Public Health
Date Data Arrived at EDR: 03/25/2008	Telephone: 707-463-4466
Date Made Active in Reports: 04/09/2008	Last EDR Contact: 03/24/2008
Number of Days to Update: 15	Next Scheduled EDR Contact: 06/23/2008
	Data Release Frequency: Varies

## **HIST UST:** Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990	Source: State Water Resources Control Board
Date Data Arrived at EDR: 01/25/1991	Telephone: 916-341-5851
Date Made Active in Reports: 02/12/1991	Last EDR Contact: 07/26/2001
Number of Days to Update: 18	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

## **LIENS:** Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 02/05/2008	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 02/06/2008	Telephone: 916-323-3400
Date Made Active in Reports: 03/14/2008	Last EDR Contact: 05/05/2008
Number of Days to Update: 37	Next Scheduled EDR Contact: 08/04/2008
	Data Release Frequency: Varies

## **AST:** Aboveground Petroleum Storage Tank Facilities

Registered Aboveground Storage Tanks.

Date of Government Version: 11/01/2007	Source: State Water Resources Control Board
Date Data Arrived at EDR: 11/27/2007	Telephone: 916-341-5712
Date Made Active in Reports: 02/14/2008	Last EDR Contact: 04/28/2008
Number of Days to Update: 79	Next Scheduled EDR Contact: 07/28/2008
	Data Release Frequency: Quarterly

## **SWEEPS UST:** SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994	Source: State Water Resources Control Board
Date Data Arrived at EDR: 07/07/2005	Telephone: N/A
Date Made Active in Reports: 08/11/2005	Last EDR Contact: 06/03/2005
Number of Days to Update: 35	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

## **CHMIRS:** California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 02/23/2007  
Date Made Active in Reports: 04/06/2007  
Number of Days to Update: 42

Source: Office of Emergency Services  
Telephone: 916-845-8400  
Last EDR Contact: 05/02/2008  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: Varies

## **NOTIFY 65:** Proposition 65 Records

Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

Date of Government Version: 10/21/1993  
Date Data Arrived at EDR: 11/01/1993  
Date Made Active in Reports: 11/19/1993  
Number of Days to Update: 18

Source: State Water Resources Control Board  
Telephone: 916-445-3846  
Last EDR Contact: 04/14/2008  
Next Scheduled EDR Contact: 07/14/2008  
Data Release Frequency: No Update Planned

## **DEED:** Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 04/01/2008  
Date Data Arrived at EDR: 04/02/2008  
Date Made Active in Reports: 04/14/2008  
Number of Days to Update: 12

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 04/02/2008  
Next Scheduled EDR Contact: 06/30/2008  
Data Release Frequency: Semi-Annually

## **VCP:** Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 02/26/2008  
Date Data Arrived at EDR: 02/27/2008  
Date Made Active in Reports: 03/27/2008  
Number of Days to Update: 29

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 02/27/2008  
Next Scheduled EDR Contact: 05/26/2008  
Data Release Frequency: Quarterly

## **DRYCLEANERS:** Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 07/31/2007  
Date Data Arrived at EDR: 07/31/2007  
Date Made Active in Reports: 08/09/2007  
Number of Days to Update: 9

Source: Department of Toxic Substance Control  
Telephone: 916-327-4498  
Last EDR Contact: 05/02/2008  
Next Scheduled EDR Contact: 06/30/2008  
Data Release Frequency: Annually

## **WIP:** Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/26/2008  
Date Data Arrived at EDR: 04/23/2008  
Date Made Active in Reports: 05/06/2008  
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board  
Telephone: 213-576-6726  
Last EDR Contact: 04/23/2008  
Next Scheduled EDR Contact: 07/21/2008  
Data Release Frequency: Varies

## **CDL:** Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2007  
Date Data Arrived at EDR: 04/22/2008  
Date Made Active in Reports: 05/06/2008  
Number of Days to Update: 14

Source: Department of Toxic Substances Control  
Telephone: 916-255-6504  
Last EDR Contact: 04/21/2008  
Next Scheduled EDR Contact: 07/21/2008  
Data Release Frequency: Varies

## **RESPONSE:** State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 02/26/2008  
Date Data Arrived at EDR: 02/27/2008  
Date Made Active in Reports: 03/27/2008  
Number of Days to Update: 29

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 02/27/2008  
Next Scheduled EDR Contact: 05/26/2008  
Data Release Frequency: Quarterly

## **HAZNET:** Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2006  
Date Data Arrived at EDR: 10/04/2007  
Date Made Active in Reports: 11/07/2007  
Number of Days to Update: 34

Source: California Environmental Protection Agency  
Telephone: 916-255-1136  
Last EDR Contact: 02/08/2008  
Next Scheduled EDR Contact: 05/05/2008  
Data Release Frequency: Annually

## **EMI:** Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 04/17/2007  
Date Made Active in Reports: 05/10/2007  
Number of Days to Update: 23

Source: California Air Resources Board  
Telephone: 916-322-2990  
Last EDR Contact: 04/18/2008  
Next Scheduled EDR Contact: 07/14/2008  
Data Release Frequency: Varies

## **ENVIROSTOR:** EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/26/2008  
Date Data Arrived at EDR: 02/27/2008  
Date Made Active in Reports: 03/27/2008  
Number of Days to Update: 29

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 02/27/2008  
Next Scheduled EDR Contact: 05/26/2008  
Data Release Frequency: Quarterly

## **HAULERS:** Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 04/28/2008  
Date Data Arrived at EDR: 04/29/2008  
Date Made Active in Reports: 05/06/2008  
Number of Days to Update: 7

Source: Integrated Waste Management Board  
Telephone: 916-341-6422  
Last EDR Contact: 04/28/2008  
Next Scheduled EDR Contact: 06/09/2008  
Data Release Frequency: Varies

## **TRIBAL RECORDS**

### **INDIAN RESERV:** Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 12/08/2006  
Date Made Active in Reports: 01/11/2007  
Number of Days to Update: 34

Source: USGS  
Telephone: 202-208-3710  
Last EDR Contact: 02/08/2008  
Next Scheduled EDR Contact: 05/05/2008  
Data Release Frequency: Semi-Annually

### **INDIAN ODI:** Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998  
Date Data Arrived at EDR: 12/03/2007  
Date Made Active in Reports: 01/24/2008  
Number of Days to Update: 52

Source: Environmental Protection Agency  
Telephone: 703-308-8245  
Last EDR Contact: 02/25/2008  
Next Scheduled EDR Contact: 05/26/2008  
Data Release Frequency: Varies

### **INDIAN LUST R7:** Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 03/17/2008  
Date Data Arrived at EDR: 03/27/2008  
Date Made Active in Reports: 05/06/2008  
Number of Days to Update: 40

Source: EPA Region 7  
Telephone: 913-551-7003  
Last EDR Contact: 02/15/2008  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: Varies

### **INDIAN LUST R8:** Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 02/20/2008  
Date Data Arrived at EDR: 03/04/2008  
Date Made Active in Reports: 03/17/2008  
Number of Days to Update: 13

Source: EPA Region 8  
Telephone: 303-312-6271  
Last EDR Contact: 02/15/2008  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: Quarterly

### **INDIAN LUST R1:** Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 03/12/2008  
Date Data Arrived at EDR: 03/14/2008  
Date Made Active in Reports: 03/20/2008  
Number of Days to Update: 6

Source: EPA Region 1  
Telephone: 617-918-1313  
Last EDR Contact: 02/15/2008  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

**INDIAN LUST R6:** Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 02/28/2008	Source: EPA Region 6
Date Data Arrived at EDR: 02/29/2008	Telephone: 214-665-6597
Date Made Active in Reports: 03/17/2008	Last EDR Contact: 02/15/2008
Number of Days to Update: 17	Next Scheduled EDR Contact: 05/19/2008
	Data Release Frequency: Varies

**INDIAN LUST R9:** Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 02/25/2008	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/26/2008	Telephone: 415-972-3372
Date Made Active in Reports: 03/17/2008	Last EDR Contact: 02/15/2008
Number of Days to Update: 20	Next Scheduled EDR Contact: 05/19/2008
	Data Release Frequency: Quarterly

**INDIAN LUST R10:** Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/21/2008	Source: EPA Region 10
Date Data Arrived at EDR: 02/26/2008	Telephone: 206-553-2857
Date Made Active in Reports: 03/20/2008	Last EDR Contact: 02/15/2008
Number of Days to Update: 23	Next Scheduled EDR Contact: 05/19/2008
	Data Release Frequency: Quarterly

**INDIAN LUST R4:** Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 03/17/2008	Source: EPA Region 4
Date Data Arrived at EDR: 03/27/2008	Telephone: 404-562-8677
Date Made Active in Reports: 05/06/2008	Last EDR Contact: 02/15/2008
Number of Days to Update: 40	Next Scheduled EDR Contact: 05/19/2008
	Data Release Frequency: Semi-Annually

**INDIAN UST R1:** Underground Storage Tanks on Indian Land  
A listing of underground storage tank locations on Indian Land.

Date of Government Version: 03/12/2008	Source: EPA, Region 1
Date Data Arrived at EDR: 03/14/2008	Telephone: 617-918-1313
Date Made Active in Reports: 03/20/2008	Last EDR Contact: 02/15/2008
Number of Days to Update: 6	Next Scheduled EDR Contact: 05/19/2008
	Data Release Frequency: Varies

**INDIAN UST R6:** Underground Storage Tanks on Indian Land  
No description is available for this data

Date of Government Version: 02/28/2008	Source: EPA Region 6
Date Data Arrived at EDR: 02/29/2008	Telephone: 214-665-7591
Date Made Active in Reports: 03/17/2008	Last EDR Contact: 02/15/2008
Number of Days to Update: 17	Next Scheduled EDR Contact: 05/19/2008
	Data Release Frequency: Semi-Annually

**INDIAN UST R7:** Underground Storage Tanks on Indian Land  
No description is available for this data

Date of Government Version: 06/01/2007	Source: EPA Region 7
Date Data Arrived at EDR: 06/14/2007	Telephone: 913-551-7003
Date Made Active in Reports: 07/05/2007	Last EDR Contact: 02/15/2008
Number of Days to Update: 21	Next Scheduled EDR Contact: 05/19/2008
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **INDIAN UST R9:** Underground Storage Tanks on Indian Land

No description is available for this data

Date of Government Version: 02/25/2008  
Date Data Arrived at EDR: 02/26/2008  
Date Made Active in Reports: 03/20/2008  
Number of Days to Update: 23

Source: EPA Region 9  
Telephone: 415-972-3368  
Last EDR Contact: 02/15/2008  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: Quarterly

## **INDIAN UST R4:** Underground Storage Tanks on Indian Land

No description is available for this data

Date of Government Version: 03/17/2008  
Date Data Arrived at EDR: 03/27/2008  
Date Made Active in Reports: 05/06/2008  
Number of Days to Update: 40

Source: EPA Region 4  
Telephone: 404-562-9424  
Last EDR Contact: 02/15/2008  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: Semi-Annually

## **INDIAN UST R5:** Underground Storage Tanks on Indian Land

No description is available for this data

Date of Government Version: 12/21/2007  
Date Data Arrived at EDR: 12/21/2007  
Date Made Active in Reports: 01/24/2008  
Number of Days to Update: 34

Source: EPA Region 5  
Telephone: 312-886-6136  
Last EDR Contact: 12/21/2007  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: Varies

## **INDIAN UST R10:** Underground Storage Tanks on Indian Land

No description is available for this data

Date of Government Version: 02/21/2008  
Date Data Arrived at EDR: 02/26/2008  
Date Made Active in Reports: 03/20/2008  
Number of Days to Update: 23

Source: EPA Region 10  
Telephone: 206-553-2857  
Last EDR Contact: 02/15/2008  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: Quarterly

## **INDIAN UST R8:** Underground Storage Tanks on Indian Land

No description is available for this data

Date of Government Version: 02/20/2008  
Date Data Arrived at EDR: 03/04/2008  
Date Made Active in Reports: 03/17/2008  
Number of Days to Update: 13

Source: EPA Region 8  
Telephone: 303-312-6137  
Last EDR Contact: 02/15/2008  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: Quarterly

## **EDR PROPRIETARY RECORDS**

### **Manufactured Gas Plants:** EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## COUNTY RECORDS

### **ALAMEDA COUNTY:**

#### **Contaminated Sites**

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/28/2008  
Date Data Arrived at EDR: 01/29/2008  
Date Made Active in Reports: 02/14/2008  
Number of Days to Update: 16

Source: Alameda County Environmental Health Services  
Telephone: 510-567-6700  
Last EDR Contact: 05/05/2008  
Next Scheduled EDR Contact: 07/21/2008  
Data Release Frequency: Semi-Annually

#### **Underground Tanks**

Underground storage tank sites located in Alameda county.

Date of Government Version: 01/28/2008  
Date Data Arrived at EDR: 01/29/2008  
Date Made Active in Reports: 02/08/2008  
Number of Days to Update: 10

Source: Alameda County Environmental Health Services  
Telephone: 510-567-6700  
Last EDR Contact: 05/05/2008  
Next Scheduled EDR Contact: 07/21/2008  
Data Release Frequency: Semi-Annually

### **CONTRA COSTA COUNTY:**

#### **Site List**

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 03/07/2008  
Date Data Arrived at EDR: 03/11/2008  
Date Made Active in Reports: 03/27/2008  
Number of Days to Update: 16

Source: Contra Costa Health Services Department  
Telephone: 925-646-2286  
Last EDR Contact: 02/25/2008  
Next Scheduled EDR Contact: 05/26/2008  
Data Release Frequency: Semi-Annually

### **FRESNO COUNTY:**

#### **CUPA Resources List**

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 03/31/2008  
Date Data Arrived at EDR: 04/18/2008  
Date Made Active in Reports: 05/06/2008  
Number of Days to Update: 18

Source: Dept. of Community Health  
Telephone: 559-445-3271  
Last EDR Contact: 04/18/2008  
Next Scheduled EDR Contact: 07/14/2008  
Data Release Frequency: Semi-Annually

### **KERN COUNTY:**

#### **Underground Storage Tank Sites & Tank Listing**

Kern County Sites and Tanks Listing.

Date of Government Version: 04/01/2008  
Date Data Arrived at EDR: 04/18/2008  
Date Made Active in Reports: 05/01/2008  
Number of Days to Update: 13

Source: Kern County Environment Health Services Department  
Telephone: 661-862-8700  
Last EDR Contact: 04/16/2008  
Next Scheduled EDR Contact: 06/02/2008  
Data Release Frequency: Quarterly

### **LOS ANGELES COUNTY:**

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 12/31/1998	Source: EPA Region 9
Date Data Arrived at EDR: 07/07/1999	Telephone: 415-972-3178
Date Made Active in Reports: N/A	Last EDR Contact: 04/14/2008
Number of Days to Update: 0	Next Scheduled EDR Contact: 07/14/2008
	Data Release Frequency: No Update Planned

## HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 02/28/2008	Source: Department of Public Works
Date Data Arrived at EDR: 04/16/2008	Telephone: 626-458-3517
Date Made Active in Reports: 05/06/2008	Last EDR Contact: 02/11/2008
Number of Days to Update: 20	Next Scheduled EDR Contact: 05/12/2008
	Data Release Frequency: Semi-Annually

## List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 02/12/2008	Source: La County Department of Public Works
Date Data Arrived at EDR: 02/21/2008	Telephone: 818-458-5185
Date Made Active in Reports: 03/27/2008	Last EDR Contact: 02/14/2008
Number of Days to Update: 35	Next Scheduled EDR Contact: 05/12/2008
	Data Release Frequency: Varies

## City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/01/2008	Source: Engineering & Construction Division
Date Data Arrived at EDR: 03/20/2008	Telephone: 213-473-7869
Date Made Active in Reports: 04/14/2008	Last EDR Contact: 03/12/2008
Number of Days to Update: 25	Next Scheduled EDR Contact: 06/09/2008
	Data Release Frequency: Varies

## Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 02/14/2008	Source: Community Health Services
Date Data Arrived at EDR: 04/10/2008	Telephone: 323-890-7806
Date Made Active in Reports: 05/06/2008	Last EDR Contact: 02/11/2008
Number of Days to Update: 26	Next Scheduled EDR Contact: 05/12/2008
	Data Release Frequency: Annually

## City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 02/11/2008	Source: City of El Segundo Fire Department
Date Data Arrived at EDR: 02/21/2008	Telephone: 310-524-2236
Date Made Active in Reports: 03/14/2008	Last EDR Contact: 02/11/2008
Number of Days to Update: 22	Next Scheduled EDR Contact: 05/12/2008
	Data Release Frequency: Semi-Annually

## City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003	Source: City of Long Beach Fire Department
Date Data Arrived at EDR: 10/23/2003	Telephone: 562-570-2563
Date Made Active in Reports: 11/26/2003	Last EDR Contact: 02/19/2008
Number of Days to Update: 34	Next Scheduled EDR Contact: 05/19/2008
	Data Release Frequency: Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 02/26/2008  
Date Data Arrived at EDR: 02/27/2008  
Date Made Active in Reports: 03/14/2008  
Number of Days to Update: 16

Source: City of Torrance Fire Department  
Telephone: 310-618-2973  
Last EDR Contact: 02/25/2008  
Next Scheduled EDR Contact: 05/12/2008  
Data Release Frequency: Semi-Annually

## MARIN COUNTY:

### Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 02/04/2008  
Date Data Arrived at EDR: 02/21/2008  
Date Made Active in Reports: 03/14/2008  
Number of Days to Update: 22

Source: Public Works Department Waste Management  
Telephone: 415-499-6647  
Last EDR Contact: 04/28/2008  
Next Scheduled EDR Contact: 07/28/2008  
Data Release Frequency: Semi-Annually

## NAPA COUNTY:

### Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 04/24/2008  
Date Data Arrived at EDR: 04/25/2008  
Date Made Active in Reports: 05/06/2008  
Number of Days to Update: 11

Source: Napa County Department of Environmental Management  
Telephone: 707-253-4269  
Last EDR Contact: 04/07/2008  
Next Scheduled EDR Contact: 06/23/2008  
Data Release Frequency: Semi-Annually

### Closed and Operating Underground Storage Tank Sites

Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008  
Date Data Arrived at EDR: 01/16/2008  
Date Made Active in Reports: 02/08/2008  
Number of Days to Update: 23

Source: Napa County Department of Environmental Management  
Telephone: 707-253-4269  
Last EDR Contact: 04/21/2008  
Next Scheduled EDR Contact: 06/23/2008  
Data Release Frequency: Annually

## ORANGE COUNTY:

### List of Industrial Site Cleanups

Petroleum and non-petroleum spills.

Date of Government Version: 03/03/2008  
Date Data Arrived at EDR: 03/20/2008  
Date Made Active in Reports: 04/14/2008  
Number of Days to Update: 25

Source: Health Care Agency  
Telephone: 714-834-3446  
Last EDR Contact: 03/06/2008  
Next Scheduled EDR Contact: 06/02/2008  
Data Release Frequency: Annually

### List of Underground Storage Tank Cleanups

Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 03/03/2008  
Date Data Arrived at EDR: 03/25/2008  
Date Made Active in Reports: 04/14/2008  
Number of Days to Update: 20

Source: Health Care Agency  
Telephone: 714-834-3446  
Last EDR Contact: 03/06/2008  
Next Scheduled EDR Contact: 06/02/2008  
Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## List of Underground Storage Tank Facilities

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 03/03/2008	Source: Health Care Agency
Date Data Arrived at EDR: 03/18/2008	Telephone: 714-834-3446
Date Made Active in Reports: 04/09/2008	Last EDR Contact: 03/06/2008
Number of Days to Update: 22	Next Scheduled EDR Contact: 06/02/2008
	Data Release Frequency: Quarterly

## PLACER COUNTY:

### Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 07/23/2007	Source: Placer County Health and Human Services
Date Data Arrived at EDR: 07/23/2007	Telephone: 530-889-7312
Date Made Active in Reports: 08/09/2007	Last EDR Contact: 03/17/2008
Number of Days to Update: 17	Next Scheduled EDR Contact: 06/16/2008
	Data Release Frequency: Semi-Annually

## RIVERSIDE COUNTY:

### Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 08/06/2007	Source: Department of Public Health
Date Data Arrived at EDR: 08/07/2007	Telephone: 951-358-5055
Date Made Active in Reports: 09/26/2007	Last EDR Contact: 04/14/2008
Number of Days to Update: 50	Next Scheduled EDR Contact: 07/14/2008
	Data Release Frequency: Quarterly

### Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 08/06/2007	Source: Health Services Agency
Date Data Arrived at EDR: 08/07/2007	Telephone: 951-358-5055
Date Made Active in Reports: 09/24/2007	Last EDR Contact: 04/14/2008
Number of Days to Update: 48	Next Scheduled EDR Contact: 07/14/2008
	Data Release Frequency: Quarterly

## SACRAMENTO COUNTY:

### Contaminated Sites

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/11/2008	Source: Sacramento County Environmental Management
Date Data Arrived at EDR: 02/27/2008	Telephone: 916-875-8406
Date Made Active in Reports: 03/14/2008	Last EDR Contact: 05/02/2008
Number of Days to Update: 16	Next Scheduled EDR Contact: 07/28/2008
	Data Release Frequency: Quarterly

### ML - Regulatory Compliance Master List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 02/11/2008	Source: Sacramento County Environmental Management
Date Data Arrived at EDR: 02/27/2008	Telephone: 916-875-8406
Date Made Active in Reports: 03/14/2008	Last EDR Contact: 05/02/2008
Number of Days to Update: 16	Next Scheduled EDR Contact: 07/28/2008
	Data Release Frequency: Quarterly

## SAN BERNARDINO COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 03/18/2008  
Date Data Arrived at EDR: 03/19/2008  
Date Made Active in Reports: 04/14/2008  
Number of Days to Update: 26

Source: San Bernardino County Fire Department Hazardous Materials Division  
Telephone: 909-387-3041  
Last EDR Contact: 03/03/2008  
Next Scheduled EDR Contact: 12/03/2007  
Data Release Frequency: Quarterly

## SAN DIEGO COUNTY:

### Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 05/16/2005  
Date Data Arrived at EDR: 05/18/2005  
Date Made Active in Reports: 06/16/2005  
Number of Days to Update: 29

Source: Hazardous Materials Management Division  
Telephone: 619-338-2268  
Last EDR Contact: 04/02/2008  
Next Scheduled EDR Contact: 06/30/2008  
Data Release Frequency: Quarterly

### Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 08/01/2007  
Date Data Arrived at EDR: 02/05/2008  
Date Made Active in Reports: 02/14/2008  
Number of Days to Update: 9

Source: Department of Health Services  
Telephone: 619-338-2209  
Last EDR Contact: 02/19/2008  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: Varies

### Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 11/28/2007  
Date Data Arrived at EDR: 03/13/2008  
Date Made Active in Reports: 04/14/2008  
Number of Days to Update: 32

Source: San Diego County Department of Environmental Health  
Telephone: 619-338-2371  
Last EDR Contact: 04/23/2008  
Next Scheduled EDR Contact: 06/30/2008  
Data Release Frequency: Varies

## SAN FRANCISCO COUNTY:

### Local Oversight Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 03/03/2008  
Date Data Arrived at EDR: 03/04/2008  
Date Made Active in Reports: 03/14/2008  
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County  
Telephone: 415-252-3920  
Last EDR Contact: 03/03/2008  
Next Scheduled EDR Contact: 06/02/2008  
Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 03/03/2008	Source: Department of Public Health
Date Data Arrived at EDR: 03/04/2008	Telephone: 415-252-3920
Date Made Active in Reports: 03/14/2008	Last EDR Contact: 03/03/2008
Number of Days to Update: 10	Next Scheduled EDR Contact: 06/02/2008
	Data Release Frequency: Quarterly

## SAN JOAQUIN COUNTY:

### San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 02/01/2008	Source: Environmental Health Department
Date Data Arrived at EDR: 02/26/2008	Telephone: N/A
Date Made Active in Reports: 03/14/2008	Last EDR Contact: 04/14/2008
Number of Days to Update: 17	Next Scheduled EDR Contact: 07/14/2008
	Data Release Frequency: Semi-Annually

## SAN MATEO COUNTY:

### Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 01/31/2008	Source: San Mateo County Environmental Health Services Division
Date Data Arrived at EDR: 02/01/2008	Telephone: 650-363-1921
Date Made Active in Reports: 02/14/2008	Last EDR Contact: 04/07/2008
Number of Days to Update: 13	Next Scheduled EDR Contact: 07/07/2008
	Data Release Frequency: Annually

### Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 04/10/2008	Source: San Mateo County Environmental Health Services Division
Date Data Arrived at EDR: 04/11/2008	Telephone: 650-363-1921
Date Made Active in Reports: 05/06/2008	Last EDR Contact: 04/07/2008
Number of Days to Update: 25	Next Scheduled EDR Contact: 07/07/2008
	Data Release Frequency: Semi-Annually

## SANTA CLARA COUNTY:

### HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005	Source: Santa Clara Valley Water District
Date Data Arrived at EDR: 03/30/2005	Telephone: 408-265-2600
Date Made Active in Reports: 04/21/2005	Last EDR Contact: 03/24/2008
Number of Days to Update: 22	Next Scheduled EDR Contact: 06/23/2008
	Data Release Frequency: No Update Planned

### LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 04/28/2008	Source: Department of Environmental Health
Date Data Arrived at EDR: 04/29/2008	Telephone: 408-918-3417
Date Made Active in Reports: 05/06/2008	Last EDR Contact: 04/28/2008
Number of Days to Update: 7	Next Scheduled EDR Contact: 06/23/2008
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 03/04/2008	Source: City of San Jose Fire Department
Date Data Arrived at EDR: 03/04/2008	Telephone: 408-277-4659
Date Made Active in Reports: 03/14/2008	Last EDR Contact: 03/03/2008
Number of Days to Update: 10	Next Scheduled EDR Contact: 06/02/2008
	Data Release Frequency: Annually

## SOLANO COUNTY:

### Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 04/04/2008	Source: Solano County Department of Environmental Management
Date Data Arrived at EDR: 04/22/2008	Telephone: 707-784-6770
Date Made Active in Reports: 05/06/2008	Last EDR Contact: 03/24/2008
Number of Days to Update: 14	Next Scheduled EDR Contact: 06/23/2008
	Data Release Frequency: Quarterly

### Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 04/04/2008	Source: Solano County Department of Environmental Management
Date Data Arrived at EDR: 04/22/2008	Telephone: 707-784-6770
Date Made Active in Reports: 05/01/2008	Last EDR Contact: 03/24/2008
Number of Days to Update: 9	Next Scheduled EDR Contact: 06/23/2008
	Data Release Frequency: Quarterly

## SONOMA COUNTY:

### Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 01/22/2008	Source: Department of Health Services
Date Data Arrived at EDR: 01/22/2008	Telephone: 707-565-6565
Date Made Active in Reports: 02/14/2008	Last EDR Contact: 04/21/2008
Number of Days to Update: 23	Next Scheduled EDR Contact: 07/21/2008
	Data Release Frequency: Quarterly

## SUTTER COUNTY:

### Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 05/04/2007	Source: Sutter County Department of Agriculture
Date Data Arrived at EDR: 05/04/2007	Telephone: 530-822-7500
Date Made Active in Reports: 05/24/2007	Last EDR Contact: 03/31/2008
Number of Days to Update: 20	Next Scheduled EDR Contact: 06/30/2008
	Data Release Frequency: Semi-Annually

## VENTURA COUNTY:

### Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/27/2008  
Date Data Arrived at EDR: 03/25/2008  
Date Made Active in Reports: 04/14/2008  
Number of Days to Update: 20

Source: Ventura County Environmental Health Division  
Telephone: 805-654-2813  
Last EDR Contact: 03/12/2008  
Next Scheduled EDR Contact: 06/09/2008  
Data Release Frequency: Quarterly

## Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 08/01/2007  
Date Data Arrived at EDR: 08/29/2007  
Date Made Active in Reports: 09/26/2007  
Number of Days to Update: 28

Source: Environmental Health Division  
Telephone: 805-654-2813  
Last EDR Contact: 02/19/2008  
Next Scheduled EDR Contact: 05/19/2008  
Data Release Frequency: Annually

## Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 02/27/2008  
Date Data Arrived at EDR: 03/25/2008  
Date Made Active in Reports: 04/14/2008  
Number of Days to Update: 20

Source: Environmental Health Division  
Telephone: 805-654-2813  
Last EDR Contact: 03/12/2008  
Next Scheduled EDR Contact: 06/09/2008  
Data Release Frequency: Quarterly

## Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 03/26/2008  
Date Data Arrived at EDR: 04/09/2008  
Date Made Active in Reports: 05/01/2008  
Number of Days to Update: 22

Source: Environmental Health Division  
Telephone: 805-654-2813  
Last EDR Contact: 04/09/2008  
Next Scheduled EDR Contact: 07/07/2008  
Data Release Frequency: Quarterly

## YOLO COUNTY:

### Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 01/29/2008  
Date Data Arrived at EDR: 02/20/2008  
Date Made Active in Reports: 03/14/2008  
Number of Days to Update: 23

Source: Yolo County Department of Health  
Telephone: 530-666-8646  
Last EDR Contact: 04/28/2008  
Next Scheduled EDR Contact: 07/14/2008  
Data Release Frequency: Annually

## OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

### CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 06/15/2007  
Date Made Active in Reports: 08/20/2007  
Number of Days to Update: 66

Source: Department of Environmental Protection  
Telephone: 860-424-3375  
Last EDR Contact: 03/14/2008  
Next Scheduled EDR Contact: 06/09/2008  
Data Release Frequency: Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **NJ MANIFEST:** Manifest Information

Hazardous waste manifest information.

Date of Government Version: 09/30/2007  
Date Data Arrived at EDR: 12/04/2007  
Date Made Active in Reports: 12/31/2007  
Number of Days to Update: 27

Source: Department of Environmental Protection  
Telephone: N/A  
Last EDR Contact: 04/03/2008  
Next Scheduled EDR Contact: 06/30/2008  
Data Release Frequency: Annually

## **NY MANIFEST:** Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 02/15/2008  
Date Data Arrived at EDR: 02/28/2008  
Date Made Active in Reports: 04/09/2008  
Number of Days to Update: 41

Source: Department of Environmental Conservation  
Telephone: 518-402-8651  
Last EDR Contact: 02/28/2008  
Next Scheduled EDR Contact: 05/26/2008  
Data Release Frequency: Annually

## **PA MANIFEST:** Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2006  
Date Data Arrived at EDR: 12/21/2007  
Date Made Active in Reports: 01/10/2008  
Number of Days to Update: 20

Source: Department of Environmental Protection  
Telephone: N/A  
Last EDR Contact: 03/10/2008  
Next Scheduled EDR Contact: 06/09/2008  
Data Release Frequency: Annually

## **RI MANIFEST:** Manifest information

Hazardous waste manifest information

Date of Government Version: 10/01/2007  
Date Data Arrived at EDR: 11/09/2007  
Date Made Active in Reports: 01/15/2008  
Number of Days to Update: 67

Source: Department of Environmental Management  
Telephone: 401-222-2797  
Last EDR Contact: 03/17/2008  
Next Scheduled EDR Contact: 06/16/2008  
Data Release Frequency: Annually

## **WI MANIFEST:** Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2006  
Date Data Arrived at EDR: 04/27/2007  
Date Made Active in Reports: 06/08/2007  
Number of Days to Update: 42

Source: Department of Natural Resources  
Telephone: N/A  
Last EDR Contact: 04/07/2008  
Next Scheduled EDR Contact: 07/07/2008  
Data Release Frequency: Annually

**Oil/Gas Pipelines:** This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

## **Electric Power Transmission Line Data**

Source: PennWell Corporation

Telephone: (800) 823-6277

This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

**Sensitive Receptors:** There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

## **AHA Hospitals:**

Source: American Hospital Association, Inc.

Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **Medical Centers: Provider of Services Listing**

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

## **Nursing Homes**

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

## **Public Schools**

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

## **Private Schools**

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

## **Daycare Centers: Licensed Facilities**

Source: Department of Social Services

Telephone: 916-657-4041

**Flood Zone Data:** This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

**NWI:** National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

## **Scanned Digital USGS 7.5' Topographic Map (DRG)**

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

## **STREET AND ADDRESS INFORMATION**

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## GEOCHECK<sup>®</sup> - PHYSICAL SETTING SOURCE ADDENDUM

### TARGET PROPERTY ADDRESS

CENTRAL MARIN FERRY CONNECTION PROJECT  
SIR FRANCIS DRAKE BLVD/ROUTE 101  
LARKSPUR, CA 94939

### TARGET PROPERTY COORDINATES

Latitude (North):	37.94616 - 37° 56' 46.2"
Longitude (West):	122.51357 - 122° 30' 48.9"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	542739.6
UTM Y (Meters):	4199747.5
Elevation:	38 ft. above sea level

### USGS TOPOGRAPHIC MAP

Target Property Map:	37122-H5 SAN RAFAEL, CA
Most Recent Revision:	1999

East Map:	37122-H4 SAN QUENTIN, CA
Most Recent Revision:	1980

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

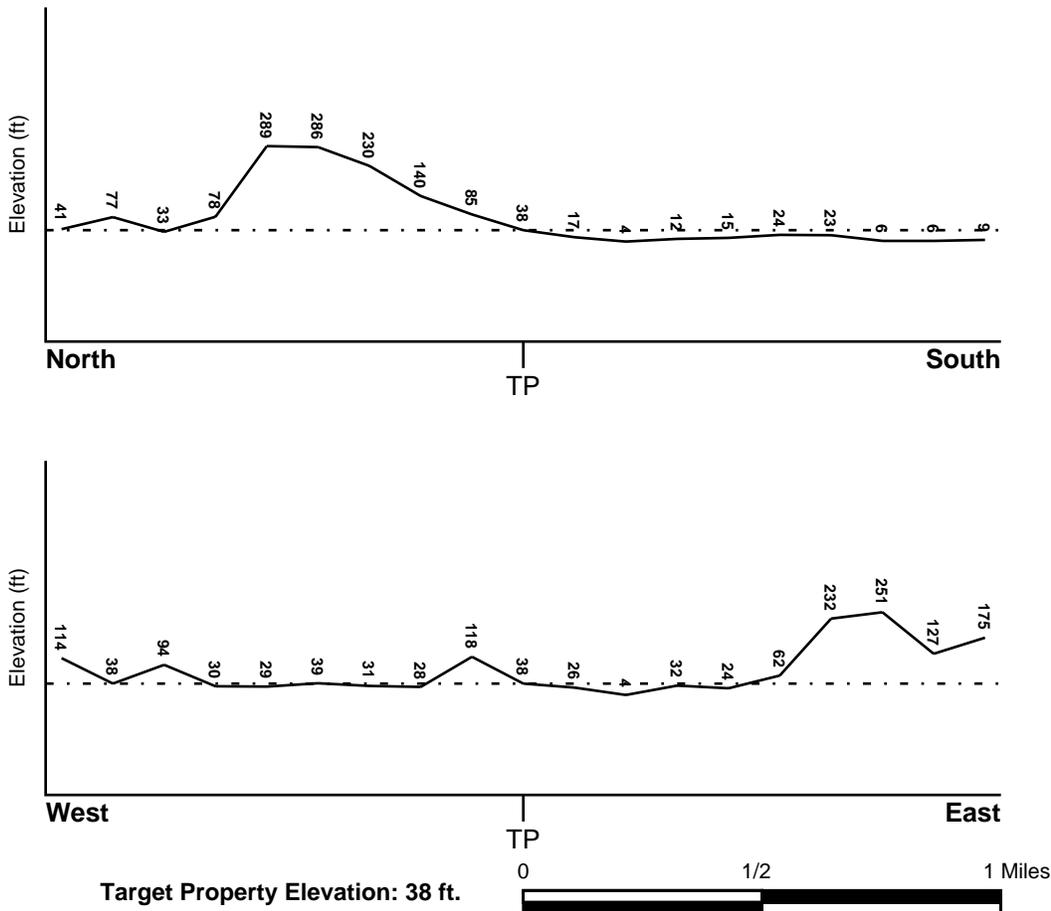
## TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

## TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General South

## SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

## **FEMA FLOOD ZONE**

<u>Target Property County</u>	<u>FEMA Flood Electronic Data</u>
MARIN, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 0650400001B

Additional Panels in search area:

- 0650580015B
- 0650580020B
- 0601730434A
- 0601730455A
- 0650230001B

## **NATIONAL WETLAND INVENTORY**

<u>NWI Quad at Target Property</u>	<u>NWI Electronic Data Coverage</u>
SAN RAFAEL	Not Available

## HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

### ***Site-Specific Hydrogeological Data\*:***

Search Radius:	1.25 miles
Status:	Not found

## **AQUIFLOW®**

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
1	1/2 - 1 Mile South	SE
3	1/2 - 1 Mile NE	NW
4	1/2 - 1 Mile NE	Varies
A5	1/2 - 1 Mile NNE	NNE
A6	1/2 - 1 Mile NNE	E

\* ©1996 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
7	1/2 - 1 Mile ENE	NNE
A8	1/2 - 1 Mile NNE	E
9	1/2 - 1 Mile NNE	Varies
10	1/2 - 1 Mile NE	S
11	1/2 - 1 Mile NE	E

For additional site information, refer to Physical Setting Source Map Findings.

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

### GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

#### **ROCK STRATIGRAPHIC UNIT**

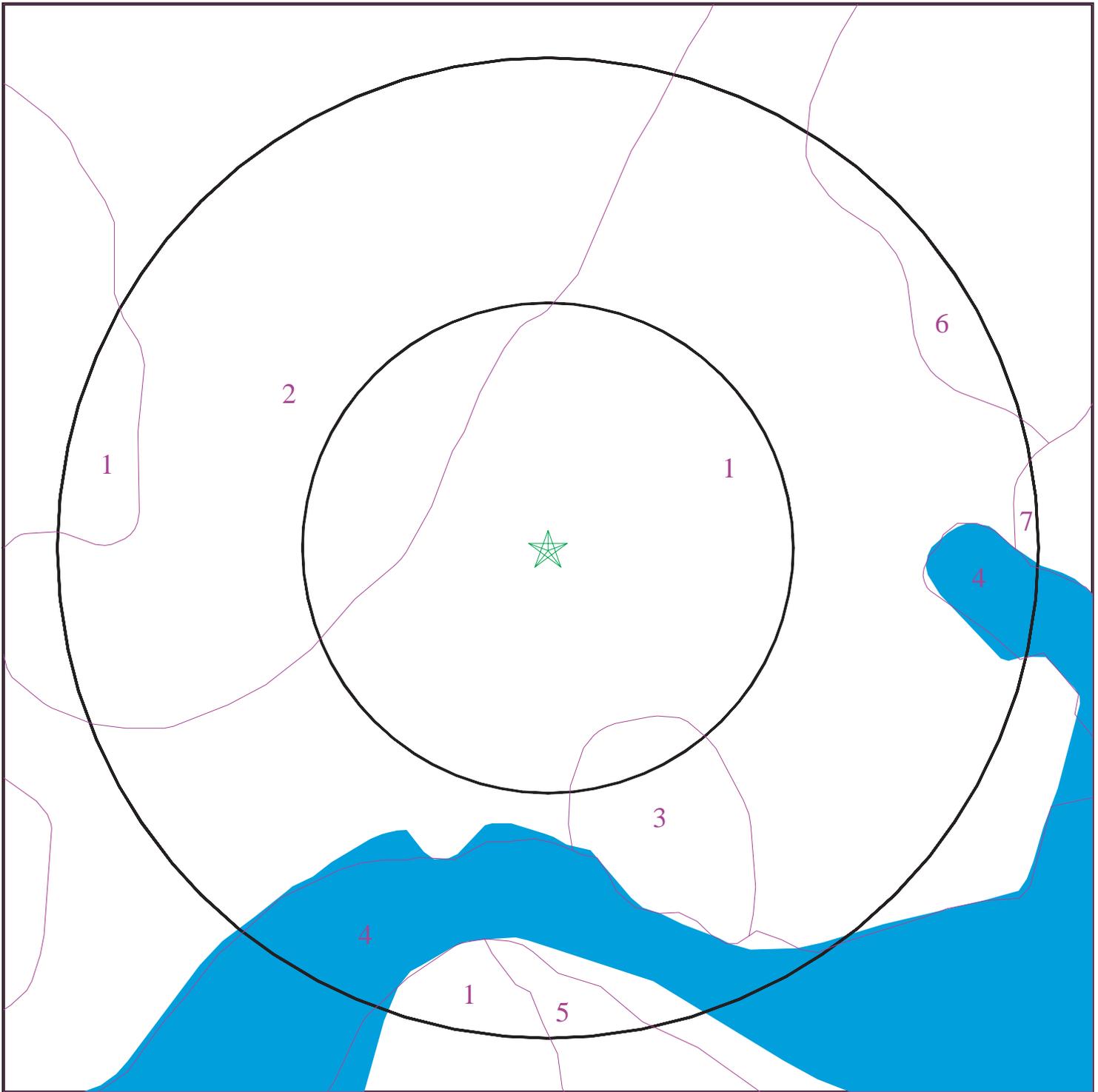
Era:	Cenozoic
System:	Tertiary
Series:	Pliocene
Code:	Tp <i>(decoded above as Era, System &amp; Series)</i>

#### **GEOLOGIC AGE IDENTIFICATION**

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

# SSURGO SOIL MAP - 2213562.2s



- ★ Target Property
- ∩ SSURGO Soil
- ∩ Water



SITE NAME: Central Marin Ferry Connection Project  
ADDRESS: Sir Francis Drake Blvd/Route 101  
Larkspur CA 94939  
LAT/LONG: 37.9462 / 122.5136

CLIENT: Baseline Environmental Cons.  
CONTACT: Patrick  
INQUIRY #: 2213562.2s  
DATE: May 06, 2008 7:01 pm

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

---

#### Soil Map ID: 1

Soil Component Name: XERORTHENTS

Soil Surface Texture:  
Hydrologic Group: Not reported

Soil Drainage Class:  
Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

---

#### Soil Map ID: 2

Soil Component Name: TOCALOMA

Soil Surface Texture: loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 46 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	18 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
2	18 inches	38 inches	very gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
3	38 inches	42 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:

**Soil Map ID: 3**

Soil Component Name: SAURIN

Soil Surface Texture: clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	9 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: Min:	Max: Min:
2	9 inches	33 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: Min:	Max: Min:
3	33 inches	37 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: Min:	Max: Min:

**Soil Map ID: 4**

Soil Component Name: Water

Soil Surface Texture: clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class:  
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

**Soil Map ID: 5**

Soil Component Name: BLUCHER

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.4
2	7 inches	22 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.4
3	22 inches	59 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.4

**Soil Map ID: 6**

Soil Component Name: PITS

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class:

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

### Soil Map ID: 7

Soil Component Name: TOCALOMA

Soil Surface Texture: loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	18 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
2	18 inches	38 inches	very gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
3	38 inches	42 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

## WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

## **FEDERAL USGS WELL INFORMATION**

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

## **FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION**

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No PWS System Found		

Note: PWS System location is not always the same as well location.

## **STATE DATABASE WELL INFORMATION**

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

# PHYSICAL SETTING SOURCE MAP - 2213562.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells



SITE NAME: Central Marin Ferry Connection Project  
 ADDRESS: Sir Francis Drake Blvd/Route 101  
 Larkspur CA 94939  
 LAT/LONG: 37.9462 / 122.5136

CLIENT: Baseline Environmental Cons.  
 CONTACT: Patrick  
 INQUIRY #: 2213562.2s  
 DATE: May 06, 2008 7:01 pm

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID	Direction	Distance	Elevation	Database	EDR ID Number
<b>1</b>	<b>South</b>	<b>1/2 - 1 Mile</b>	<b>Lower</b>	<b>AQUIFLOW</b>	<b>39048</b>
	Site ID:	21-0027			
	Groundwater Flow:	SE			
	Shallow Water Depth:	.8			
	Deep Water Depth:	4.5			
	Average Water Depth:	Not Reported			
	Date:	12/23/1998			
<b>2</b>	<b>SSW</b>	<b>1/2 - 1 Mile</b>	<b>Higher</b>	<b>AQUIFLOW</b>	<b>65964</b>
	Site ID:	21-0239			
	Groundwater Flow:	Not Reported			
	Shallow Water Depth:	2			
	Deep Water Depth:	21			
	Average Water Depth:	Not Reported			
	Date:	Not Reported			
<b>3</b>	<b>NE</b>	<b>1/2 - 1 Mile</b>	<b>Lower</b>	<b>AQUIFLOW</b>	<b>50380</b>
	Site ID:	Not Reported			
	Groundwater Flow:	NW			
	Shallow Water Depth:	2			
	Deep Water Depth:	7			
	Average Water Depth:	Not Reported			
	Date:	09/03/1993			
<b>4</b>	<b>NE</b>	<b>1/2 - 1 Mile</b>	<b>Lower</b>	<b>AQUIFLOW</b>	<b>50388</b>
	Site ID:	Not Reported			
	Groundwater Flow:	Varies			
	Shallow Water Depth:	2.5			
	Deep Water Depth:	7.79			
	Average Water Depth:	Not Reported			
	Date:	05/14/1997			
<b>A5</b>	<b>NNE</b>	<b>1/2 - 1 Mile</b>	<b>Lower</b>	<b>AQUIFLOW</b>	<b>52934</b>
	Site ID:	Not Reported			
	Groundwater Flow:	NNE			
	Shallow Water Depth:	3.00			
	Deep Water Depth:	6.07			
	Average Water Depth:	Not Reported			
	Date:	05/23/1995			
<b>A6</b>	<b>NNE</b>	<b>1/2 - 1 Mile</b>	<b>Lower</b>	<b>AQUIFLOW</b>	<b>52857</b>
	Site ID:	Not Reported			
	Groundwater Flow:	E			
	Shallow Water Depth:	Not Reported			
	Deep Water Depth:	Not Reported			
	Average Water Depth:	6			
	Date:	08/25/1993			
<b>7</b>	<b>ENE</b>	<b>1/2 - 1 Mile</b>	<b>Lower</b>	<b>AQUIFLOW</b>	<b>50377</b>
	Site ID:	Not Reported			
	Groundwater Flow:	NNE			
	Shallow Water Depth:	1.01			
	Deep Water Depth:	6.80			
	Average Water Depth:	Not Reported			
	Date:	11/30/1993			

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID	Direction	Distance	Elevation	Database	EDR ID Number
<b>A8</b>					
<b>NNE</b>	Site ID:		Not Reported		
<b>1/2 - 1 Mile</b>	Groundwater Flow:		E	<b>AQUIFLOW</b>	<b>52863</b>
<b>Lower</b>	Shallow Water Depth:		Not Reported		
	Deep Water Depth:		Not Reported		
	Average Water Depth:		7		
	Date:		11/26/1991		
<hr/>					
<b>9</b>					
<b>NNE</b>	Site ID:		Not Reported		
<b>1/2 - 1 Mile</b>	Groundwater Flow:		Varies	<b>AQUIFLOW</b>	<b>50390</b>
<b>Lower</b>	Shallow Water Depth:		1.28		
	Deep Water Depth:		2.14		
	Average Water Depth:		Not Reported		
	Date:		02/09/1996		
<hr/>					
<b>10</b>					
<b>NE</b>	Site ID:		Not Reported		
<b>1/2 - 1 Mile</b>	Groundwater Flow:		S	<b>AQUIFLOW</b>	<b>50343</b>
<b>Lower</b>	Shallow Water Depth:		Not Reported		
	Deep Water Depth:		Not Reported		
	Average Water Depth:		5		
	Date:		07/11/1996		
<hr/>					
<b>11</b>					
<b>NE</b>	Site ID:		Not Reported		
<b>1/2 - 1 Mile</b>	Groundwater Flow:		E	<b>AQUIFLOW</b>	<b>50373</b>
<b>Lower</b>	Shallow Water Depth:		9		
	Deep Water Depth:		10		
	Average Water Depth:		Not Reported		
	Date:		11/02/1988		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

## AREA RADON INFORMATION

State Database: CA Radon

### Radon Test Results

Zip	Total Sites	> 4 Pci/L	Pct. > 4 Pci/L
94939	3	0	0.00

Federal EPA Radon Zone for MARIN County: 3

Note: Zone 1 indoor average level > 4 pCi/L.  
 : Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.  
 : Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 94939

Number of sites tested: 3

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.400 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## TOPOGRAPHIC INFORMATION

### **USGS 7.5' Digital Elevation Model (DEM)**

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

### **Scanned Digital USGS 7.5' Topographic Map (DRG)**

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

## HYDROLOGIC INFORMATION

**Flood Zone Data:** This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

**NWI:** National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

## HYDROGEOLOGIC INFORMATION

### **AQUIFLOW<sup>R</sup> Information System**

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

## GEOLOGIC INFORMATION

### **Geologic Age and Rock Stratigraphic Unit**

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

### **STATSGO: State Soil Geographic Database**

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

### **SSURGO: Soil Survey Geographic Database**

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## LOCAL / REGIONAL WATER AGENCY RECORDS

### FEDERAL WATER WELLS

#### **PWS:** Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

#### **PWS ENF:** Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

#### **USGS Water Wells:** USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

### STATE RECORDS

#### **Water Well Database**

Source: Department of Water Resources

Telephone: 916-651-9648

#### **California Drinking Water Quality Database**

Source: Department of Health Services

Telephone: 916-324-2319

The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

## OTHER STATE DATABASE INFORMATION

#### **California Oil and Gas Well Locations**

Source: Department of Conservation

Telephone: 916-323-1779

### RADON

#### **State Database: CA Radon**

Source: Department of Health Services

Telephone: 916-324-2208

Radon Database for California

#### **Area Radon Information**

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

#### **EPA Radon Zones**

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

## PHYSICAL SETTING SOURCE RECORDS SEARCHED

### OTHER

**Airport Landing Facilities:** Private and public use landing facilities  
Source: Federal Aviation Administration, 800-457-6656

**Epicenters:** World earthquake epicenters, Richter 5 or greater  
Source: Department of Commerce, National Oceanic and Atmospheric Administration

**California Earthquake Fault Lines:** The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

### STREET AND ADDRESS INFORMATION

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**APPENDIX C**  
**QUALIFICATIONS OF PREPARERS**

**YANE NORDHAV**

**Y**ane Nordhav is the principal of BASELINE. She is the principal-in-charge for BASELINE projects related to hazardous materials management, development of remedial actions, site characterizations, and CEQA/NEPA documentation. She performs QA/QC functions for all projects at BASELINE. As principal investigator, she has managed and conducted groundwater investigations and remediation on major Superfund sites and local brownfields sites in California.

Through her work, she has developed an extensive working knowledge of regulatory requirements and established working relationships with regulatory agency staff on the state and local levels. She routinely works with Regional Water Quality Control Board, Department of Toxic Substances Control, and local agency staff to arrive at appropriate goals for risk-based cleanup of soil and groundwater resources.

She has managed major environmental audits and developed environmental programs for cities, ports, and industrial clients; her work has included development of strategies for waste management and minimization, and UST compliance programs. She also routinely provides litigation support and expert witness services to clients on sites that have been affected by historic land uses and require cleanup prior to future productive uses. In addition, Ms. Nordhav has been the project manager for the preparation of major environmental documents in California, including EIRs for controversial projects, ranging from open pit mines, hazardous waste disposal facilities, and new towns.

Recent projects include:

- Sacramento Trapshoot Club, investigation, remediation, agency negotiations, Project Manager, 2004-2006
- Stockton Waterfront Brownfields Pilot Project, Project Manager, 2000-2006
- Bayview Transportation Improvements Project EIR/EIS, Hazardous Materials and Water Quality Technical Studies, Project Manager, 2004-2006
- Port of Oakland, Berths 25 and 26, investigation, remediation, agency negotiations, 2002-present

M.S., Geology, Cal State Hayward  
B.A., Geology, U.C. Berkeley  
40-hour OSHA training  
PG No. 4009  
25 years of experience

**Professional Affiliations**

Association of Engineering Geologists, associate member  
Association of Environmental Professionals, member  
Groundwater Resources Association, member

**Presentations and Publications**

Nordhav, Yane, 1998, Are Geologic and Seismic Impacts Significant, Unavoidable, or Mitigatable, in *AEP Environmental Monitor*, Summer.

Nordhav, Yane, 1997, Identification of Geologic Impacts - UC Berkeley, guest lecturer for Conservation of Natural Resources Department.

Nordhav, Yane, 1997, Moderator - Panel on Changes in Hazardous Waste Management, Association of Environmental Professionals Annual Meeting, San Francisco.

Schoenholz, Dan and Yane Nordhav, 1995, *Construction of a Movie Theater at Lot 12: A Case Study in Reuse of a Former Manufactured Gas Plant Site*; in *Land Contamination and Reclamation* 3(4).

Phase I and II Investigations and Land Use Decisions, presented at the Annual Meeting of the National Association of Housing and Redevelopment Officials, San Francisco, September 1992.

Closure and Clean-up of Underground Storage Tanks; a one-day training course presented at HAZMACON 1987 for Association of Bay Area Governments and to local implementing agencies throughout California for the State Water Resources Control Board.

The Long Journey from Discovery to Clean-Up of Superfund Sites, presented at the Annual Meeting of Association of Engineering Geologists, Boston, MA, 1984; published in the *Bulletin of the Association of Engineering Geologists*, Vol. 12:2, May 1986.

**PATRICK T. SUTTON**

Patrick Sutton is an environmental scientist. He has worked as a field scientist for hazardous waste sites, and managed state-funded and privately-financed soil and groundwater remediation projects. Remediation projects have included residential properties, service stations, landfills, drycleaners, railroads, and other commercial properties impacted with lead, mold, asbestos, petroleum hydrocarbons, chlorinated solvents, polychlorinated biphenyls, and heavy metals.

Mr. Sutton has prepared impact evaluations for geology, hazardous materials, and water quality sections for CEQA documents for residential, commercial, and industrial projects, as well as community colleges, community parks, and highway improvements projects. He has also performed Phase I site assessments in accordance with ASTM standards. He has prepared Initial Site Assessments and Aerially Deposited Lead Investigations in accordance with Caltrans requirements for major transportation projects in the Bay Area.

Mr. Sutton has supervised the installation of groundwater monitoring wells and remediation systems. Remedial system installations have included air sparge, soil vapor extraction, enhanced bioremediation, permanganate injection, and groundwater extraction systems. He has supervised the general earthwork operations, construction of retaining walls, installation of subsurface utilities, pad preparations for buildings, and demolition for several large-scale commercial development projects. One of the construction projects required the design and implementation of a six-month blast-monitoring program. Through his work associated with groundwater and soil sampling, remediation system maintenance, and earthwork operations, he is experienced in the use of a wide variety of portable environmental monitoring and sampling equipment.

B.S., Environmental Science, Dickinson College  
Carlisle, Pennsylvania  
Environmental Professional In-Training  
No. 00100907  
40-hour OSHA training  
4 years of experience

**Recent Experience**

- Santa Clara Valley Transportation Authority, *Interstate-880 High Occupancy Vehicle Lane Widening Project*, Initial Site Assessment and Aerially Deposited Lead Investigation, Project Manager, 2008.
- City of Antioch, *Roddy Ranch Project*, Geology and Soils section of the Draft Environmental Impact Report, Project Manager, 2008.
- San Francisco Public Utilities Commission, *New Irvington Tunnel Project*, Hazards and Hazardous Materials section of the Draft Environmental Impact Report, Project Manager, 2008.
- San Francisco Public Utilities Commission, *Harry Tracy Water Treatment Plant Improvement Project*, Phase I Site Assessment in support of CEQA review, Project Manager, 2008.
- Solano County Transportation Authority, *North Connector Project*, Phase I and Initial Site Assessment, Project Manager, 2007.

**Professional Affiliation**

Institute of Professional Environmental Practice

TAM

Transportation Authority of Marin  
Central Marin Ferry Connection  
Larkspur, California  
Phase 1

PHASE II SOIL INVESTIGATION

Version 1, April 2010

TAM Project No.: C-FY05/06-007

C&B Agreement No.: CB701729

SUBMITTED BY:



Yane Nordhav, BASELINE Environmental Consulting

5/4/2010

Date

REVIEWED BY:



Lauren Abom, Jacobs

5/4/2010

Date

APPROVED BY:



For

Kai Chan, Jacobs

5/4/2010

Date



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**TABLE**

- 1: Lead Concentrations in Soil



# PHASE II SOIL INVESTIGATION

## Central Marin Ferry Connection Project Larkspur, California

### 1. INTRODUCTION

This Phase II Soil Investigation has been provided for the Central Marin Ferry Connection Project in Larkspur, California (Figure 1). The Transportation Authority of Marin proposes to construct a new multi-use pathway to serve pedestrians and bicyclists along the Sonoma Marin Area Rail Transit (SMART) right-of-way near the intersection of Sir Francis Drake Boulevard and U.S. 101. Grading and excavation activities would be limited to the area immediately surrounding the proposed multi-use path (Figure 2).

A Phase I Environmental Site Assessment (Phase I) prepared by BASELINE in August 2009 identified the following contaminants of potential concern (COPC) in the vicinity of the Central Marin Ferry Connection Project (BASELINE, 2009):

- Pesticides, herbicides, creosote, and metals in shallow soils adjacent to railroad tracks.
- Petroleum hydrocarbons and associated compounds in shallow soils associated with the use of an unpaved parking lot.
- Creosote and metals in abandoned railroad ties and existing boardwalk beams and planks.
- Aerially-deposited lead (ADL) in shallow soils within approximately 30 feet of Sir Francis Drake Boulevard and the northbound on- and off- ramps for U.S. 101.

Based on the footprint of excavation and construction activities for the proposed multi-use path (Figure 2), ADL in undisturbed soils near the intersection of Sir Francis Drake Boulevard and U.S. 101 is the only COPC that may affect the proposed project. The purpose of this investigation was to determine whether ADL is present in soils near the intersection of Sir Francis Drake Boulevard and U.S. 101 that would require special soil management and disposal during project excavation activities.

### 2. FIELD SAMPLING ACTIVITIES

All field activities were conducted under a site-specific Health and Safety Plan. A SMART right-of-entry permit was obtained to collect soil samples from borings S1, S2, and S3. A California

Department of Transportation (Caltrans) standard encroachment permit was obtained to collect soil samples from boring S4 (Figure 3).

Soil boring S1 was located on the north side of Sir Francis Drake Boulevard approximately ten feet away from the paved shoulder of the road to avoid utilities (Figure 3). Soil borings S2, S3, and S4 were located on the south side of Sir Francis Drake Boulevard and the U.S. 101 northbound off-ramp approximately 20 to 40 feet away from the paved shoulder of the roads to avoid utilities and non-native granular fill material placed beneath portions of the existing pathway (Figure 3).

On 20 August 2009, soil samples were collected from 0.5, 1.0, and 2.0 feet below ground surface from each boring location using a slide hammer equipped with a 2-inch by 3-inch stainless steel corer lined with new 3-inch stainless steel liners. The borings were advanced to the target depths using a combination of digging tools such as a hand auger and digging bar. After the sample was retrieved, the stainless steel liners were capped and sealed with silicone tape. The hand sampling equipment was decontaminated between samples by scrubbing in an Alconox solution and rinsing in two sequential buckets of potable water. Rinsate water has been temporarily stored in a sealed and labeled container for off-site disposal or recycling.

The soil samples were labeled and stored in a container immediately following collection. Each sample was labeled with the project name, sample date, sampler initials, and unique sample identification. The soil samples were submitted to Curtis & Tompkins, Ltd. (C&T), of Berkeley, California following proper chain-of-custody protocol.

### **3. SOIL ANALYTICAL RESULTS**

A total of 12 soil samples from four soil borings were analyzed for total and/or soluble lead. A summary of the soil analytical results and potential reuse and off-site disposal options are discussed below. Copies of the laboratory reports are included in Appendix A.

#### *Assessment of Analytical Results for Reuse of Excavated Soils*

All soil samples were analyzed for total lead by Environmental Protection Agency (EPA) Method 6010B. Soil analytical results for total lead were screened against the San Francisco Bay Regional Water Quality Control Board (Water Board) Environmental Screening Levels (ESLs) for construction workers and residential and commercial land uses (Water Board, 2008). Concentrations of total lead were reported above the laboratory reporting limits in all the soil samples and ranged from 8 to 100 milligrams per kilogram (mg/kg). None of the total lead concentrations was reported above the Water Board ESLs for construction workers or residential and commercial land uses (Table 1).

Assessment of Analytical Results for Off-Site Disposal

A soil, once excavated, may be classified as a California hazardous waste, as a federal hazardous waste, or a non-hazardous waste depending on its characteristics. In California, a waste is considered hazardous if the total concentration of a chemical is at or above the Total Threshold Limit Concentration (TTLC) or if the soluble concentration of a chemical, determined by the Waste Extraction Test (WET), is at or above the Soluble Threshold Limit Concentration (STLC) (California Code of Regulations Title 22, Section 66261.24). A soil is considered a federal hazardous waste if it contains soluble chemicals, determined by the Toxicity Characteristic Leaching Procedure (TCLP), equal to or greater than the regulatory thresholds established in Title 40 of the Code of Federal Regulations for toxicity. The theoretical maximum soluble concentration of an analyte in a sample may be estimated by assuming that 100 percent of the total analyte concentration is soluble and taking into account that the WET results in a ten-fold dilution and the TCLP results in a twenty-fold dilution.

Total lead did not equal or exceed the TTLC criteria for classifying hazardous waste in California in the 12 soil samples. Six of the soil samples (S2;2.0, S3;0.5, S3;1.0, S4;0.5, S4;1.0, and S4;2.0) contained total lead above 50 mg/kg (10 times the California hazardous waste criterion for WET lead) and were re-analyzed for soluble lead by WET. Two of the soil samples (S3;1.0 and S4;1.0) had total lead concentrations equal to 100 mg/kg (20 times the federal hazardous waste criterion for soluble lead) and were also re-analyzed for soluble lead by TCLP. Two of the six samples analyzed by WET had soluble lead concentrations above the STLC criterion. The two soil samples analyzed for soluble lead by TCLP did not have soluble lead concentrations above the federal hazardous waste criterion (Table 1).

A statistical evaluation was performed to determine the 90 percent Upper Confidence Limit (90% UCL) for soluble lead analyzed by WET. The 90% UCL for WET lead was calculated in accordance with EPA guidance document *Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods* (SW-846), using ProUCL version 4.00.04.<sup>1</sup> A theoretical maximum concentration of lead equal to ten percent of the reported total concentration was assumed for samples without actual WET lead data. The theoretical concentrations of WET lead are considered conservative (i.e., worst-case) scenarios.

The statistical evaluation indicated that the reported and theoretical WET lead data followed a normal distribution at a 0.05 significance level and the 90% UCL of the mean could be calculated

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<sup>1</sup> ProUCL 4.00.04 is a statistical software program developed by the EPA. ProUCL 4.00.04 contains statistical methods that can be used to estimate statistical parameters such as UCLs. The statistical methods incorporated in ProUCL 4.00.04 are consistent with methods described in EPA guidance documents for calculating UCLs.

using the Student's t-test. The 90% UCL for the reported and theoretical WET lead data from the 12 soil samples was 3.98 milligrams per liter (mg/L), which is below the California hazardous waste threshold for soluble lead of 5.0 mg/L. An output file generated by ProUCL 4.00.04 is included in Appendix B.

#### **4. FINDINGS**

Soil near the intersection of Sir Francis Drake Boulevard and U.S. 101 may be reused on-site, based on the screening of soil analytical results against the Water Board ESLs, since none of the samples contained total lead above residential ESLs, where groundwater is assumed to be a source of drinking water. As discussed above, the statistical evaluation indicated that soils excavated near the intersection of Sir Francis Drake Boulevard and U.S. 101 would be considered a non-hazardous waste based on soluble lead.

#### **5. RECOMMENDATIONS**

The data from this investigation should be provided to prospective landfills in the event that surplus soils are generated during construction. Based on analytical results and statistical evaluation, surplus soil excavated from the project area could be disposed of at a Class II or Class III landfill. This report may serve to fulfill a landfill's waste profiling requirements. However, waste acceptance is determined on a case-by-case basis and varies from one landfill to another. The prospective landfill may request additional sampling and testing to satisfy waste profile requirements.

#### **6. LIMITATIONS**

This soil investigation has been conducted in support of the Central Marin Ferry Connection Project. BASELINE's interpretations and conclusions regarding this information and presented in this report are based on the expertise and experience of BASELINE in conducting similar assessments and current federal, state, and local regulations and standards.

It is important to recognize that even the most comprehensive scope of services may fail to detect environmental conditions and potential liability at a particular site. Therefore, BASELINE cannot act as insurers and cannot "certify or underwrite" that a site is free of environmental contamination, and no expressed or implied representation or warranty is included or intended in this report except that the work was performed within the limits prescribed with the customary thoroughness and competence of our profession.

The passage of time, manifestation of latent conditions, or occurrence of future events may require further exploration at the project site, analysis of the data, and re-evaluation of the findings, observations, conclusions, and recommendations expressed in the report.

The findings, observations, conclusions, and recommendations expressed in this report are limited by the scope of services and should not be considered an opinion concerning the compliance of any past or current owner or operator of the site with any federal, state, or local law or regulation. No

warranty or guarantee, whether express or implied is made with respect to the data reported or findings, observations, conclusions, and recommendations expressed in this report.

## **7. REFERENCES**

BASELINE, 2009, *Phase I Environmental Site Assessment, Central Marin Ferry Connection Project*, August.

San Francisco Bay Regional Water Quality Control Board, 2008 (revised), *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*, Interim Final, May.

## FIGURES



Source: Aerial-NAIP 2005 - Marin County; Topo-CASIL o\_SW0301 SID, Study Area - digitized Jacobs.

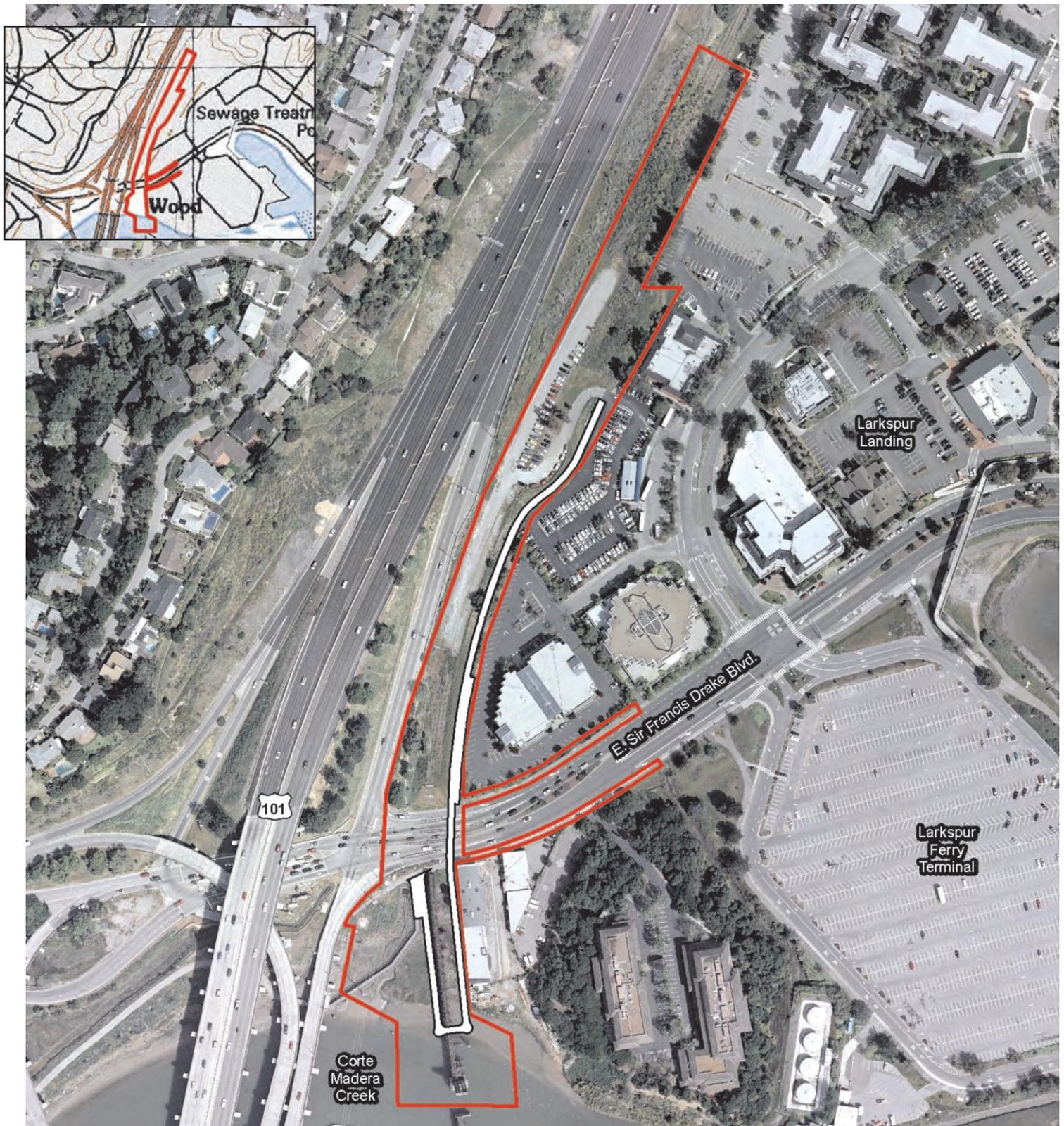
JACOBS Carter Burgess, 2009.

Legend

 CMFC Study Area

**Central Marin Ferry Connection Project  
Larkspur, California**





Legend

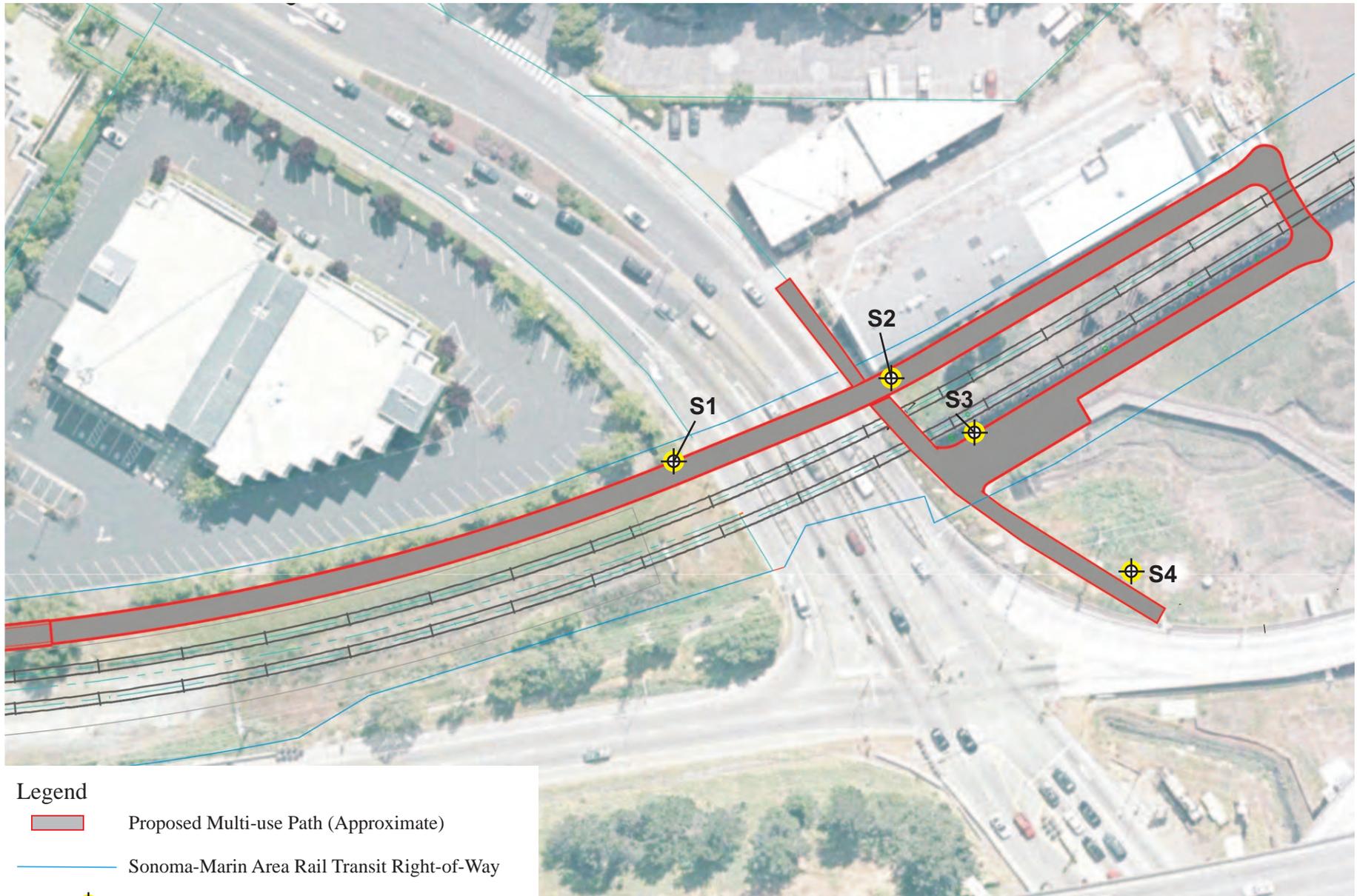
- Multi-use Pathway Footprint
- CMFC Study Area

Source: Aerial-NAIP 2005 - Marin County; Topo-CASIL o\_SW0301 SID, Study Area - digitized Jacobs.

JACOBS Carter Burgess, 2009.

Central Marin Ferry Connection Project  
Larkspur, California



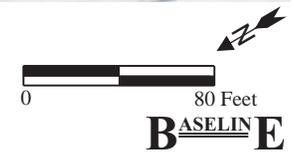


Legend

-  Proposed Multi-use Path (Approximate)
-  Sonoma-Marin Area Rail Transit Right-of-Way
-  S1 Soil Sample Location

Note: Soil samples were collected from 0.5, 1.0, and 2.0 feet below ground surface from each soil sample location.

Central Marin Ferry Connection Project  
Larkspur, California





## TABLE

**TABLE 1: Lead Concentrations in Soil  
Central Marin Ferry Connection Project**

Sample Location	Sample Depth (feet bgs)	Sample ID	Sample Date	Total Lead (mg/kg)	WET Lead (mg/L)	TCLP Lead (mg/L)
S1	0.5	S1;0.5	8/20/2009	21	--	--
	1.0	S1;1.0	8/20/2009	22	--	--
	2.0	S1;2.0	8/20/2009	8.7	--	--
S2	0.5	S2;0.5	8/20/2009	8.0	--	--
	1.0	S2;1.0	8/20/2009	44	--	--
	2.0	S2;2.0	8/20/2009	66	3.0	--
S3	0.5	S3;0.5	8/20/2009	64	3.6	--
	1.0	S3;1.0	8/20/2009	100	<b>7.9</b>	0.45
	2.0	S3;2.0	8/20/2009	31	--	--
S4	0.5	S4;0.5	8/20/2009	54	1.5	--
	1.0	S4;1.0	8/20/2009	100	<b>6.5</b>	2.9
	2.0	S4;2.0	8/20/2009	75	1.2	--
ESL for Residential Land Use <sup>1</sup>				200	NV	NV
ESL for Commerical/Industrial Land Use <sup>2</sup>				750	NV	NV
ESL for Construction/Trench Worker Exposure <sup>3</sup>				750	NV	NV
California Hazardous Waste Criteria <sup>4</sup>				1,000	5.0	NV
Federal Hazardous Waste Criteria <sup>4</sup>				NV	NV	5.0

Notes:

- Sample locations are shown on Figure 3.
- Laboratory reports are included in Appendix A.
- Total lead analyzed by EPA Method 6010B.
- bgs = below ground surface.
- mg/kg = milligram per kilogram.
- mg/L = milligram per liter.
- ESL = Environmental Screening Level.
- NV = No value.
- = Not analyzed.

**Bold fonts and shaded cells indicate concentrations were greater than or equal to hazardous waste criteria.**

- <sup>1</sup> California Regional Water Quality Control Board, San Francisco Bay Region, 2008, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater Is a Current or Potential Source of Drinking Water, Residential Land Use.
- <sup>2</sup> California Regional Water Quality Control Board, San Francisco Bay Region, 2008, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater Is a Current or Potential Source of Drinking Water, Commercial/Industrial Land Use.
- <sup>3</sup> California Regional Water Quality Control Board, San Francisco Bay Region, 2008, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*, Interim Final, May, Table K-3, Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario.
- <sup>4</sup> California Code of Regulations, Title 22, Division 4.5, Chapter 11, Section 66261.24.

## **APPENDICES**



**APPENDIX A**

**LABORATORY REPORTS**



**QUALITY CONTROL CHECKLIST  
FOR REVIEW OF LABORATORY REPORT**

**Job No.** Y6322-03

**Site:** Central Marin Ferry  
Connection

**Laboratory:** Curtis and Tompkins, Ltd.

**Laboratory Report No.:** 214306 and 214504

**Report Date:** 27 August and 4 September 2009

**BASELINE Reviewer:** PS

	Yes	No	NA
<b>GENERAL QUESTIONS</b> (Describe “no” responses below in “comments” section. Contact the laboratory, as required, for further explanation or action on “no” responses; document discussion in comments section.)			
1a. Does the report include a case narrative? (A case narrative <i>MUST</i> be prepared by the lab for all analytical work requested by BASELINE)	X		
1b. Is the number of pages for the lab report as indicated on the case narrative/lab transmittal consistent with the number of pages that are included in report?	X		
1c. Does the case narrative indicate which samples were analyzed by a subcontractor and the subcontractor’s name?			X
1d. Does the case narrative summarize subsequent requests not shown on the chain-of-custody (e.g., additional analyses requested, release of “hold” samples)?	X		
1e. Does the case narrative explain why requested analyses could not be performed by laboratory (e.g., insufficient sample)?			X
1f. Does the case narrative explain all problems with the QA/QC data as identified in the checklist (as applicable)?	X		
2a. Is the laboratory report format consistent and legible throughout the report?	X		
2b. Are the sample and reported dates shown in the laboratory report correct?	X		
3a. Does the lab report include the original chain-of-custody form?	X		
3b. Were all samples appropriately analyzed as requested on the chain-of-custody form?	X		
4. Was the lab report signed and dated as being reviewed by the laboratory director, QA manager, or other appropriate personnel? (Some lab reports have signature spaces for each page). (This requirement also applies to any analyses subcontracted out by the laboratory)	X		
5a. Are preparation methods, cleanup methods (if applicable), and laboratory methods indicated for all analyses?	X		
5b. If additional analytes were requested as part of the reporting of the data for an analytical method, were these included in the lab report?	X		
6. Are the units in the lab report provided for each analysis consistent throughout the report?	X		

**Quality Control Checklist - continued**

	Yes	No	NA
7. Are the detection limits (DL) appropriate based on the intended use of the data (e.g., DL below applicable MCLs for water quality issues)?	X		
8a. Are detection limits appropriate based on the analysis performed (i.e., not elevated due to dilution effects)?	X		
8b. If no, is an explanation provided by the laboratory?			X
9a. Were the samples analyzed within the appropriate holding time (generally 2 weeks for volatiles, and up to 6 months for total metals)?	X		
9b. If no, was it flagged in the report?			X
10. If samples were composited prior to analysis, does the lab report indicate which samples were composited for each analysis?			X
11a. Do the chromatograms confirm quantitative laboratory results (petroleum hydrocarbons)?			X
11b. Is a standard chromatogram(s) included in the laboratory report?			X
11c. Do the chromatograms confirm laboratory notes, if present (e.g., sample exhibits lighter hydrocarbon than standard)?			X
12. Are the results consistent with previous analytical results from the site? <i>(If no, contact the lab and request review/reanalysis of data, as appropriate.)</i>			X
13a. REVISED LAB REPORTS ONLY. Is the revised lab report or revised pages to a lab report signed and dated as being reviewed by the laboratory director, QA manager, or other appropriate personnel?			X
13b. REVISED LAB REPORTS ONLY. Does the case narrative indicate the date of revision and provide an explanation for the revision?			X
13c. REVISED LAB REPORTS ONLY. Does the revised lab report adequately address the problem(s) that triggered the need for a revision?			X
13d. REVISED LAB REPORTS ONLY. Are the data included in the revised report the same as the data reported in the original report, except where the report was revised to correct incorrectly reported data?			X
<b>QA/QC Questions</b>			
Field/Laboratory Quality Control - Groundwater Analyses			
14. Are field blanks reported as “ND” (groundwater samples)? <i>A field blank is a sample of DI water that is prepared in the field using the same collection and handling procedures as the other samples collected, and used to demonstrate that the sampling procedure has not contaminated the sample.</i>			X
14a. Are rinsate blanks reported as “ND” (soil samples)? <i>A rinsate blank is a sample of DI water that is prepared in the field by collecting DI rinse water after it has been poured over decontaminated sampling equipment. The rinsate blank is collected to demonstrate that the decontamination procedure has removed all the contaminants from the sampling equipment and that the sampling equipment has not contaminated the sample.</i>			X

**Quality Control Checklist - continued**

	Yes	No	NA
15. Are trip blanks reported as “ND” (groundwater samples/volatile analyses)? <i>A trip blank is a sample of contaminant free matrix placed in an appropriate container by the lab and transported with the field samples collected. Provides information regarding positive interference introduced during sample transport, storage, preservation, and analysis. The sample is NOT opened in the field.</i>			X
16. Are duplicate sample results consistent with the original sample (groundwater samples)? <i>Field duplicates consist of two independent samples collected at the same sampling location during a single sampling event. Used to evaluate precision of the analytical data and sampling technique. (Differences between the duplicate and sample results may also be attributed to environmental variability.)</i>			X
<b>Batch Quality Control</b> (Samples are batched together by matrix [soil, water] and analyses requested. A batch generally consists of 20 or fewer samples of the same matrix type, and is prepared using the same reagents, standards, procedures, and time frame as the samples. QC samples are run with each batch to assess performance of the entire measurement process.)			
17. Do the sample batch numbers and corresponding laboratory QA/QC batch numbers match?	X		
18a. Are method blanks (MB) for the analytical method(s) below the laboratory reporting limits? <i>Used to assess lab contamination and prevent false positive results.</i>	X		
18b. If no, is an explanation provided in the case narrative to validate the data?			X
18c. Are analytes that may be considered laboratory contaminants reported below the laboratory reporting limit? <i>Common lab contaminants include acetone, methylene chloride, diethylhexyl phthalate, and di-n-octyl phthalate.</i>			X
18d. If no, was the laboratory contacted to determine whether the reported analyte could be a potential laboratory contaminant and was an explanation included in the case narrative?			X
19. Are laboratory control samples (LCS) and LCS duplicate (LCSD) [a.k.a., Blank Spike (BS) and BS duplicates (BSD)] within laboratory reporting limits? Limits should be provided on the report. <i>LCS is a reagent blank spike with a representative selection of target analyte(s) and prepared in the same manner as the samples analyzed. The LCS should be spiked with the same analytes as the matrix spike (below). The LCS is free from interferences from the sample matrix and demonstrates the ability of the lab instruments to recover the target analytes. Accuracy (recovery information) is generally reported as % spike recovery; precision (reproducibility of results) between the LCS and LCSD is generally reported as the relative percent difference (RPD). LCS/LCSD can be run in addition to or in lieu of matrix QC data.</i>	X		
20a. Are the Matrix QC data (i.e., MS/MSD) within laboratory limits? Limits should be provided on the lab report. <i>The lab selects a sample from the batch and analyzes a spike and a spike duplicate of that sample. Matrix QC data is used to obtain precision and accuracy information and is reported in the same manner as LCS/LCSD. If the MS/MSD fails, the results may still be considered valid if the MB and either the LCS/LCSD or BS/BSD is within the lab’s limits (failure is probably due to matrix interference).</i>	X		

*Quality Control Checklist - continued*

	Yes	No	NA
20b. If no, is the MB and either LCS/LCSD or BS/BSD within lab limits to validate the data?			X
<b>Sample Quality Control</b>			
21a. Are the surrogate spikes reported within the lab's acceptable recovery limits? <i>A surrogate is a non-target analyte, which is similar in chemical structure to the analyte(s) being analyzed for, and which is not commonly found in environmental samples. A known concentration of the surrogate is spiked into the sample or QA "sample" prior to extraction or sample preparation. Results are usually reported as % recovery of the spike. Failure to meet lab's limits for primary and secondary surrogates results in rebatching and reanalysis of the sample; failure of only the primary or the secondary surrogate may be acceptable under certain circumstances. Failure generally is due to coelution with the sample matrix.</i>			X
21b. If no, is an explanation given in the case narrative to validate the data?			X

**Comments:**

No comments.



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2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 214306
ANALYTICAL REPORT

Baseline Environmental
5900 Hollis Street
Emeryville, CA 94608

Project : Y6322-01
Location : Central Marin Ferry Connection
Level : II

Table with 2 columns: Sample ID and Lab ID. Rows include S1;0.5, S1;1.0, S1;2.0, S2;0.5, S2;1.0, S2;2.0, S3;0.5, S3;1.0, S3;2.0, S4;0.5, S4;1.0, S4;2.0.

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: [Handwritten Signature]
Project Manager

Date: 08/27/2009

NELAP # 01107CA

### CASE NARRATIVE

Laboratory number: 214306  
Client: Baseline Environmental  
Project: Y6322-01  
Location: Central Marin Ferry Connection  
Request Date: 08/20/09  
Samples Received: 08/20/09

This data package contains sample and QC results for twelve soil samples, requested for the above referenced project on 08/20/09. The samples were received intact at ambient temperature.

**Metals (EPA 6010B):**

No analytical problems were encountered.

**BASELINE ENVIRONMENTAL CONSULTING CHAIN OF CUSTODY RECORD**

5900 Hollis Street, Suite D  
 Emeryville, CA 94608  
 Tel: (510) 420-8686 Fax: (510) 420-1707

Turn-Around-Time Standard  
 Laboratory Curtis and Tompkins  
 BASELINE Contact Person Patrick Sutton

214306

Project Number	Project Name		Type		Containers		Preservative					Total Lead (EPA 6010B)	Remarks/ Composite				
	Y6322-01	Central Marin Ferry Connection	SS-Tube	Encore	L-AG	40-ml VOA	500 ml Poly	250 ml Poly	Glass Jar	Plastic Bag	Ice			HCL	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH + ZnAc
1	S1:0.5	8/20/09	16:40	Soil	1	1										X	
2	S1:1.0	8/20/09	10:45	Soil	1	1										X	
3	S1:2.0	8/20/09	11:16	Soil	1	1										X	
4	S2:0.5	8/20/09	9:10	Soil	1	1										X	
5	S2:1.0	8/20/09	9:15	Soil	1	1										X	
6	S2:2.0	8/20/09	9:25	Soil	1	1										X	
7	S3:0.5	8/20/09	9:35	Soil	1	1										X	
8	S3:1.0	8/20/09	9:40	Soil	1	1										X	
9	S3:2.0	8/20/09	9:45	Soil	1	1										X	
10	S4:0.5	8/20/09	9:50	Soil	1	1										X	
11	S4:1.0	8/20/09	9:55	Soil	1	1										X	
12	S4:2.0	8/20/09	10:00	Soil	1	1										X	
Relinquished by: (Signature)												Date/Time	8/20/09 11:30	Arrival at Laboratory:	8/20/09 11:30		
Relinquished by: (Signature)												Date/Time	8/20/09 11:30	Remarks:	Patrick		
Relinquished by: (Signature)												Date/Time		Email contact:	Chert@baseline-env.com		
Received at laboratory with intact:												YES	NO	Comments:			

COOLER RECEIPT CHECKLIST



Login # 214306 Date Received 8-20-9 Number of coolers 1
Client BASELINE Project CENTRAL MAIN FERRY

Date Opened 8-20-9 By (print) SEWANS (sign) [Signature]
Date Logged in J By (print) J (sign) [Signature]

1. Did cooler come with a shipping slip (airbill, etc) YES NO
Shipping info

2A. Were custody seals present? ... YES (circle) on cooler on samples NO
How many Name Date

2B. Were custody seals intact upon arrival? YES NO N/A

3. Were custody papers dry and intact when received? YES NO

4. Were custody papers filled out properly (ink, signed, etc)? YES NO

5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO

6. Indicate the packing in cooler: (if other, describe)
Bubble Wrap Foam blocks Bags None
Cloth material Cardboard Styrofoam Paper towels

7. Temperature documentation:
Type of ice used: Wet Blue/Gel None Temp(C)
Samples Received on ice & cold without a temperature blank
Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? YES NO
If YES, what time were they transferred to freezer?

9. Did all bottles arrive unbroken/unopened? YES NO

10. Are samples in the appropriate containers for indicated tests? YES NO

11. Are sample labels present, in good condition and complete? YES NO

12. Do the sample labels agree with custody papers? YES NO

13. Was sufficient amount of sample sent for tests requested? YES NO

14. Are the samples appropriately preserved? YES NO N/A

15. Are bubbles > 6mm absent in VOA samples? YES NO N/A

16. Was the client contacted concerning this sample delivery? YES NO
If YES, Who was called? By Date:

COMMENTS
No [Signature]

<b>Lead</b>		
Lab #:	214306	Location: Central Marin Ferry Connection
Client:	Baseline Environmental	Prep: EPA 3050B
Project#:	Y6322-01	Analysis: EPA 6010B
Analyte:	Lead	Batch#: 154123
Matrix:	Soil	Sampled: 08/20/09
Units:	mg/Kg	Received: 08/20/09
Basis:	as received	Prepared: 08/21/09
Diln Fac:	1.000	Analyzed: 08/24/09

Field ID	Type	Lab ID	Result	RL
S1;0.5	SAMPLE	214306-001	21	0.25
S1;1.0	SAMPLE	214306-002	22	0.25
S1;2.0	SAMPLE	214306-003	8.7	0.25
S2;0.5	SAMPLE	214306-004	8.0	0.25
S2;1.0	SAMPLE	214306-005	44	0.25
S2;2.0	SAMPLE	214306-006	66	0.25
S3;0.5	SAMPLE	214306-007	64	0.25
S3;1.0	SAMPLE	214306-008	100	0.25
S3;2.0	SAMPLE	214306-009	31	0.25
S4;0.5	SAMPLE	214306-010	54	0.25
S4;1.0	SAMPLE	214306-011	100	0.25
S4;2.0	SAMPLE	214306-012	75	0.25
	BLANK	QC508736	ND	0.25

ND= Not Detected  
 RL= Reporting Limit

**Batch QC Report**

<b>Lead</b>			
Lab #:	214306	Location:	Central Marin Ferry Connection
Client:	Baseline Environmental	Prep:	EPA 3050B
Project#:	Y6322-01	Analysis:	EPA 6010B
Analyte:	Lead	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	154123
MSS Lab ID:	214308-006	Sampled:	08/18/09
Matrix:	Soil	Received:	08/20/09
Units:	mg/Kg	Prepared:	08/21/09
Basis:	as received	Analyzed:	08/24/09

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC508737		100.0	96.51	97	80-120		
BSD	QC508738		100.0	93.13	93	80-120	4	20
MS	QC508739	5.008	100.0	77.56	73	49-124		
MSD	QC508740		90.09	72.22	75	49-124	3	31

RPD= Relative Percent Difference



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2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

**Laboratory Job Number 214504  
ANALYTICAL REPORT**

Baseline Environmental 5900 Hollis Street Emeryville, CA 94608	Project : Y6322-01 Location : Central Marin Ferry Connection Level : II
--	---

<u>Sample ID</u>	<u>Lab ID</u>
S2;2.0	214504-001
S3;0.5	214504-002
S3;1.0	214504-003
S4;0.5	214504-004
S4;1.0	214504-005
S4;2.0	214504-006

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature:   
Project Manager

Date: 09/04/2009

NELAP # 01107CA

### CASE NARRATIVE

Laboratory number: 214504  
Client: Baseline Environmental  
Project: Y6322-01  
Location: Central Marin Ferry Connection  
Request Date: 08/28/09  
Samples Received: 08/20/09

This data package contains sample and QC results for six soil samples, requested for the above referenced project on 08/28/09. The samples were received intact at ambient temperature.

**Metals (EPA 6010B) TCLP Leachate:**

No analytical problems were encountered.

**Metals (EPA 6010B) WET Leachate:**

No analytical problems were encountered.

**Lisa Brooker**

214504

**From:** "Patrick Sutton" <patrick@baseline-env.com>  
**To:** "Lisa Brooker" <lisa@ctberk.com>  
**Sent:** Friday, August 28, 2009 11:48 AM  
**Subject:** RE: Y6322-01 - C&T Reports (214306)

Hi Lisa,

Can you please run WET analysis for lead on the following samples:

New #  
214504

- 001 • S2;2.0 - 006
- 002 • S3;0.5 - 007
- 003 • S3;1.0 - 008
- 004 • S4;0.5 - 010
- 005 • S4;1.0 - 011
- 006 • S4;2.0 - 012

Can you please run TCLP analysis for lead on the following samples:

- 003 • S3;1.0 - 008
- 005 • S4;1.0 - 011

Thanks,  
Patrick

Patrick Sutton  
 Environmental Scientist  
 BASELINE Environmental Consulting  
 5900 Hollis Street, Suite D  
 Emeryville, CA 94608  
 Phone: (510) 420-8686  
 Fax: (510) 420-1707

---

**From:** Lisa Brooker [mailto:lisa@ctberk.com]  
**Sent:** Thursday, August 27, 2009 3:06 PM  
**To:** patrick@baseline-env.com  
**Subject:** Y6322-01 - C&T Reports (214306)

Hi Patrick. Attached is a PDF version of the reports for C&T job 214306.

C&T sends its e-reports via the Internet as Portable Document Format (PDF) files. Reports in this format, when accompanied by a signed cover page, are considered official reports. **No hardcopy reports will be sent either by fax or U.S. Postal Service unless otherwise requested.** You may distribute your PDF files electronically or as printed hardcopies, as long as they are distributed in their entirety.

Email compiled and sent 08/27/09 03:05 PM.

**BASELINE ENVIRONMENTAL CONSULTING CHAIN OF CUSTODY RECORD**

5900 Hollis Street, Suite D  
 Emeryville, CA 94608  
 Tel: (510) 420-8686 Fax: (510) 420-1707

Turn-Around-Time Standard  
 Laboratory Curtis and Tompkins  
 BASELINE Contact Person Patrick Sutton

214306

Project Number		Project Name		Containers		Type		Preservative		Total Lead (EPA 6010B)	Remarks/ Composite										
Sample ID	No. Station	Date	Time	Media	No.	SS-Tube	Encore	L-AG	40-ml VOA			500 ml Poly	250 ml Poly	Glass Jar	Plastic Bag	Ice	HCL	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH + ZnAc	
1	S1:0.5	8/20/09	16:40	Soil	1	1														X	
2	S1:1.0	8/20/09	10:45	Soil	1	1														X	
3	S1:2.0	8/20/09	11:16	Soil	1	1														X	
4	S2:0.5	8/20/09	9:10	Soil	1	1														X	
5	S2:1.0	8/20/09	9:15	Soil	1	1														X	
6	S2:2.0	8/20/09	9:25	Soil	1	1														X	
7	S3:0.5	8/20/09	9:35	Soil	1	1														X	
8	S3:1.0	8/20/09	9:40	Soil	1	1														X	
9	S3:2.0	8/20/09	9:45	Soil	1	1														X	
10	S4:0.5	8/20/09	9:50	Soil	1	1														X	
11	S4:1.0	8/20/09	9:55	Soil	1	1														X	
12	S4:2.0	8/20/09	10:01	Soil	1	1														X	
Relinquished by: (Signature)										Date/Time											
<i>Reynold Jany</i>										8/20/09	11:30										
Relinquished by: (Signature)										Date/Time											
<i>Patrick Sutton</i>										8/20/09	11:30										
Relinquished by: (Signature)										Date/Time											
<i>Patrick Sutton</i>										8/20/09	11:30										
Received at laboratory with intact:										YES	NO										
Comments:																					

COOLER RECEIPT CHECKLIST



Login # 214306 Date Received 8-20-9 Number of coolers 1
Client BASELINE Project CENTRAL MAIN FERRY

Date Opened 8-20-9 By (print) SEWANS (sign) [Signature]
Date Logged in J By (print) J (sign) [Signature]

1. Did cooler come with a shipping slip (airbill, etc) YES NO
Shipping info

2A. Were custody seals present? ... YES (circle) on cooler on samples NO
How many Name Date

2B. Were custody seals intact upon arrival? YES NO N/A

3. Were custody papers dry and intact when received? YES NO

4. Were custody papers filled out properly (ink, signed, etc)? YES NO

5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO

6. Indicate the packing in cooler: (if other, describe)
Bubble Wrap Foam blocks Bags None
Cloth material Cardboard Styrofoam Paper towels

7. Temperature documentation:
Type of ice used: Wet Blue/Gel None Temp(C)

Samples Received on ice & cold without a temperature blank

Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? YES NO
If YES, what time were they transferred to freezer?

9. Did all bottles arrive unbroken/unopened? YES NO

10. Are samples in the appropriate containers for indicated tests? YES NO

11. Are sample labels present, in good condition and complete? YES NO

12. Do the sample labels agree with custody papers? YES NO

13. Was sufficient amount of sample sent for tests requested? YES NO

14. Are the samples appropriately preserved? YES NO N/A

15. Are bubbles > 6mm absent in VOA samples? YES NO N/A

16. Was the client contacted concerning this sample delivery? YES NO
If YES, Who was called? By Date:

COMMENTS

NO DE
[Handwritten notes and lines for comments]

Lead		
Lab #:	214504	Location: Central Marin Ferry Connection
Client:	Baseline Environmental	Prep: EPA 3010A
Project#:	Y6322-01	Analysis: EPA 6010B
Analyte:	Lead	Sampled: 08/20/09
Matrix:	TCLP Leachate	Received: 08/20/09
Units:	ug/L	Prepared: 09/02/09
Diln Fac:	10.00	Analyzed: 09/02/09
Batch#:	154487	

Field ID	Type	Lab ID	Result	RL
S3;1.0	SAMPLE	214504-003	450	30
S4;1.0	SAMPLE	214504-005	2,900	30
	BLANK	QC510292	ND	30
	BLANK	QC510293	ND	30

ND= Not Detected  
 RL= Reporting Limit

**Batch QC Report**

<b>Lead</b>		
Lab #:	214504	Location: Central Marin Ferry Connection
Client:	Baseline Environmental	Prep: EPA 3010A
Project#:	Y6322-01	Analysis: EPA 6010B
Analyte:	Lead	Batch#: 154487
Field ID:	ZZZZZZZZZZ	Sampled: 08/24/09
MSS Lab ID:	214404-001	Received: 08/25/09
Matrix:	TCLP Leachate	Prepared: 09/02/09
Units:	ug/L	Analyzed: 09/02/09

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Diln	Fac
BS	QC510294		2,000	2,009	100	80-120				1.000
BSD	QC510295		2,000	2,104	105	80-120	5	20		1.000
MS	QC510296	63.63	2,000	1,959	95	68-120				10.00
MSD	QC510297		2,000	2,004	97	68-120	2	20		10.00

RPD= Relative Percent Difference

Lead		
Lab #:	214504	Location: Central Marin Ferry Connection
Client:	Baseline Environmental	Prep: WET
Project#:	Y6322-01	Analysis: EPA 6010B
Analyte:	Lead	Sampled: 08/20/09
Matrix:	WET Leachate	Received: 08/20/09
Units:	ug/L	Prepared: 08/30/09
Diln Fac:	10.00	Analyzed: 08/31/09
Batch#:	154394	

Field ID	Type	Lab ID	Result	RL
S2;2.0	SAMPLE	214504-001	3,000	150
S3;0.5	SAMPLE	214504-002	3,600	150
S3;1.0	SAMPLE	214504-003	7,900	150
S4;0.5	SAMPLE	214504-004	1,500	150
S4;1.0	SAMPLE	214504-005	6,500	150
S4;2.0	SAMPLE	214504-006	1,200	150
	BLANK	QC509894	ND	150

ND= Not Detected  
 RL= Reporting Limit

**Batch QC Report**

<b>Lead</b>			
Lab #:	214504	Location: Central Marin Ferry Connection	
Client:	Baseline Environmental	Prep:	WET
Project#:	Y6322-01	Analysis: EPA 6010B	
Analyte:	Lead	Batch#:	154394
Field ID:	ZZZZZZZZZZ	Sampled:	08/10/09
MSS Lab ID:	214430-001	Received:	08/11/09
Matrix:	WET Leachate	Prepared:	08/30/09
Units:	ug/L	Analyzed:	08/31/09

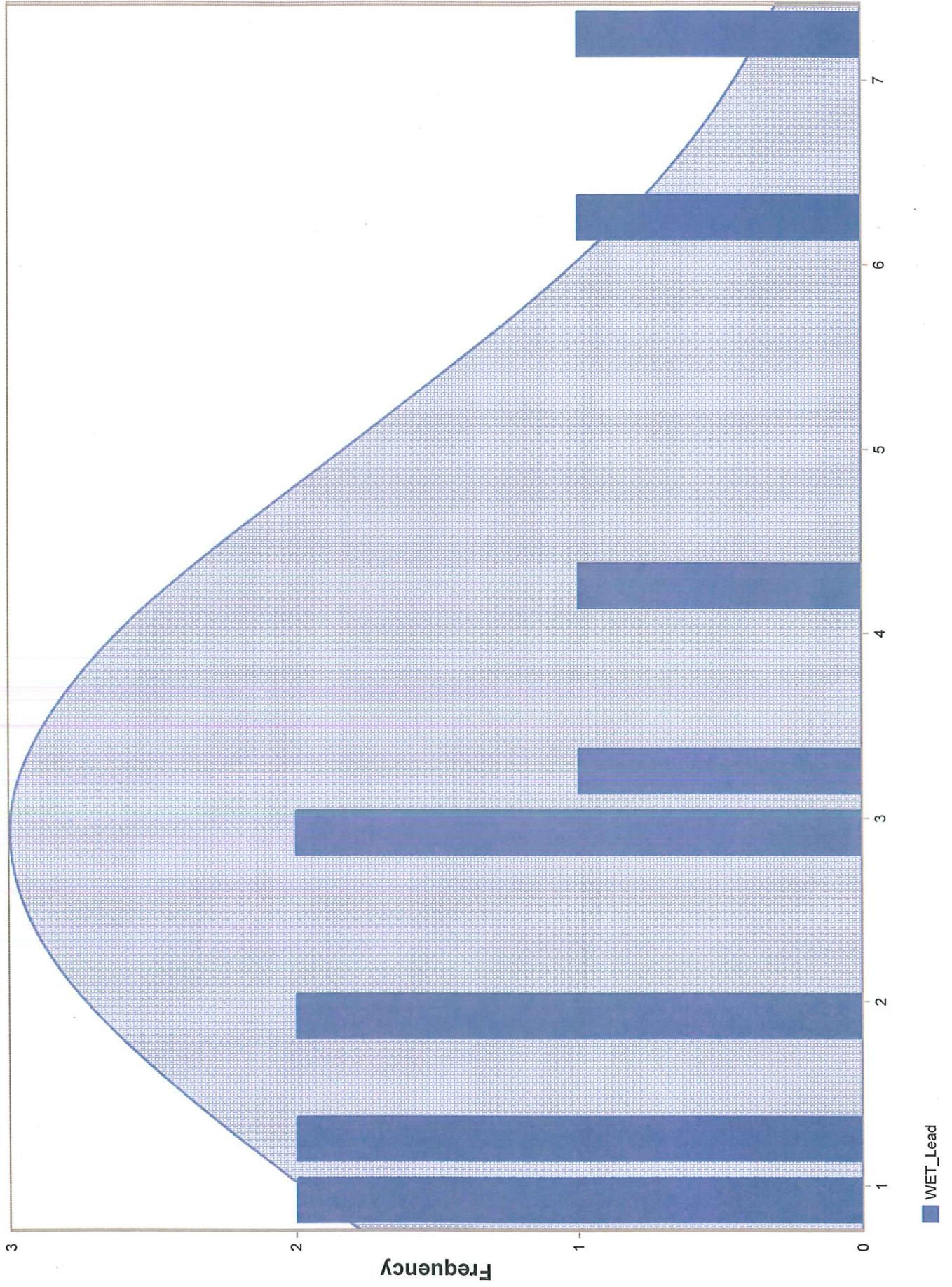
Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Diln	Fac
BS	QC509895		2,000	1,899	95	80-120				1.000
BSD	QC509896		2,000	1,905	95	80-120	0	20		1.000
MS	QC509897	1,618	10,000	10,410	88	68-120				10.00
MSD	QC509898		10,000	10,350	87	68-120	1	20		10.00

RPD= Relative Percent Difference

**APPENDIX B**

**PROUCL OUTPUT FILES**

Histogram for WET\_Lead



Normal UCL Statistics for Full Data Sets

User Selected Options

From File P:\Base\Y6322\Y6322-03 CMFC Phase II\01326 Phase II Soil Investigation\ProUCL.wst  
 Full Precision OFF  
 Confidence Coefficient 90%

WET\_Lead

Number of Valid Observations 12  
 Number of Distinct Observations 12  
 Minimum 0.8  
 Maximum 7.9  
 Mean 3.098  
 Median 2.6  
 SD 2.232  
 Variance 4.981  
 Coefficient of Variation 0.721  
 Skewness 1.145

Shapiro Wilk Test Statistic 0.884  
 5% Shapiro Wilk Critical Value 0.859

Data appear Normal at 5% Significance Level

90% UCL (Assuming Normal Distribution)  
 Student's-t UCL 3.976

Potential UCL to Use

Recommendation Provided only for 95% Confidence Coefficient

Transportation Authority of Marin

Central Marin Ferry Connection

Phase I Project

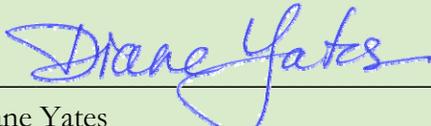
Marin County, California

**VISUAL RESOURCE IMPACT ASSESSMENT REPORT**

Version 1, April 2010

TAM Project No.: C-FY05/06-007

Jacobs Carter Burgess Project No: CB701729

SUBMITTED BY:  April 28, 2010  
Diane Yates  
Landscape Architect  
Date

REVIEWED BY:  April 28, 2010  
Lauren Abom  
Senior Environmental Planner  
Date

APPROVED BY:  For April 28, 2010  
Kai Chan, PE  
Transportation Program Manager  
Date



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## Executive Summary

This Visual Resource Impact Assessment technical study was conducted to determine if the Central Marin Ferry Connection (CMFC Phase I Project) Phase I Project would adversely affect important views, scenic vistas, create a source of light and/or glare, or degrade the visual environment of the area surrounding the project area. The assessment was prepared in accordance with the California Department of Transportation (Caltrans) and Federal Highway Administration (FHWA) guidance (U.S. DOT Order 5610.1c establishing general requirements for environmental impacts, and 23 CFR 771 *Environmental Impact and Related Procedures*) and Caltrans Local Assistance Procedures.

This assessment concludes that substantial permanent visual impacts resulting from the CMFC Phase I Project are unlikely to occur. Mitigation strategies for the few slight visual impacts are listed below:

Visual Impact	Mitigation Strategies
Pedestrian scale lighting would produce glare for SFDB motorists and reduce sky visibility for pedestrians.	Use lighting features that direct light away from the street, buildings or the sky.
The proposed pedestrian bridge would obscure motorists' views toward Mt. Tamalpais from westbound SFDB.	Employ bridge design strategies that <u>retain more visibility</u> of Mt Tamalpais from East SFDB.  Integrate details and aesthetics from other bridges in Larkspur to help “visually integrate the various sections of the community.”
Approximately 47 trees and one shrub may be removed from the construction zone of the CMFC Phase I Project Phase I Project.	Replace trees and shrubs removed and re-seed areas disturbed by construction. Trim trees and shrubs lightly damaged by construction.
Night-time construction activities would produce glare for SFDB motorists and sky light pollution.	Construction procedures will be taken to direct the light inward toward the construction site.

In the following ways, the CMFC Phase I Project would enhance the visual resources of the project area and meet the policies and values of the land use plans for Larkspur and Marin County, as quoted from the *Marin Countywide Plan Update Draft and the City of Larkspur General Plan*.

- The CMFC Phase I Project would “retain a sense of the area’s physical setting” by providing new opportunities for pedestrians and cyclists to view Corte Madera Creek, Mt. Tamalpais and the natural ridgelines from the elevated bridge and ramp.

- CMFC Phase I Project's connection to the Corte Madera Creek greenway will provide improved access to the creek and marsh.
- The CMFC Phase I Project bridge and ramp plan is designed to bridge over the marsh on piers and avoid spanning over the creek, thus ensuring that this transportation facility would not "impinge upon irreplaceable resources such as Corte Madera Creek and its shoreline" and would preserve the natural environment as a "component of Larkspur's community character and identity."

## **1.0 Introduction**

A Visual Resource Impact Assessment was conducted for the Central Marin Ferry Connection (CMFC Phase I Project) Phase I Project. The Study Area for the project is located in the City of Larkspur in Marin County, California (see **Figure 1**, **Figure 2**, and **Figure 3**). The purpose of this study was to determine if the CMFC Phase I Project would adversely affect important views to regional landmarks, scenic vistas, or degrade the visual quality of the Study Area and land uses surrounding the project.

### **1.1. Project Location**

The CMFC Phase I Project is located in the City of Larkspur within Marin County, California. The project Study Area encompasses an area of approximately six acres and includes the Sir Francis Drake Boulevard (SFDB) and the U.S. Highway 101 interchange milepost (PM) 14.7 to PM 15.3. The proposed project would occur in Larkspur as shown on the San Rafael 7.5-minute United States Geological Survey (USGS) quadrangle.

### **1.2. Project Purpose**

The purpose of the proposed project is to create a new multi-use pathway intended to promote non-motorized commute alternatives and enhance recreational travel. A new pedestrian bridge over East SFDB is proposed for a location east of the U.S. 101/SFDB interchange. The pathway will be located within the Sonoma Marin Area Rail Transit (SMART) right-of-way and generally follow Marin County's north-south greenway. The proposed projects is of vital importance to Central Marin as it will provide safe, direct, and convenient pedestrian and bicycle access between local transit facilities, such as the future SMART Larkspur Station and the existing Larkspur Ferry Terminal, as well as provide access to local schools, business and retail centers, recreation amenities, and residential neighborhoods.

This proposed project would also improve opportunities to observe the Corte Madera Creek salt marsh area by connecting to the existing boardwalk over the marsh.

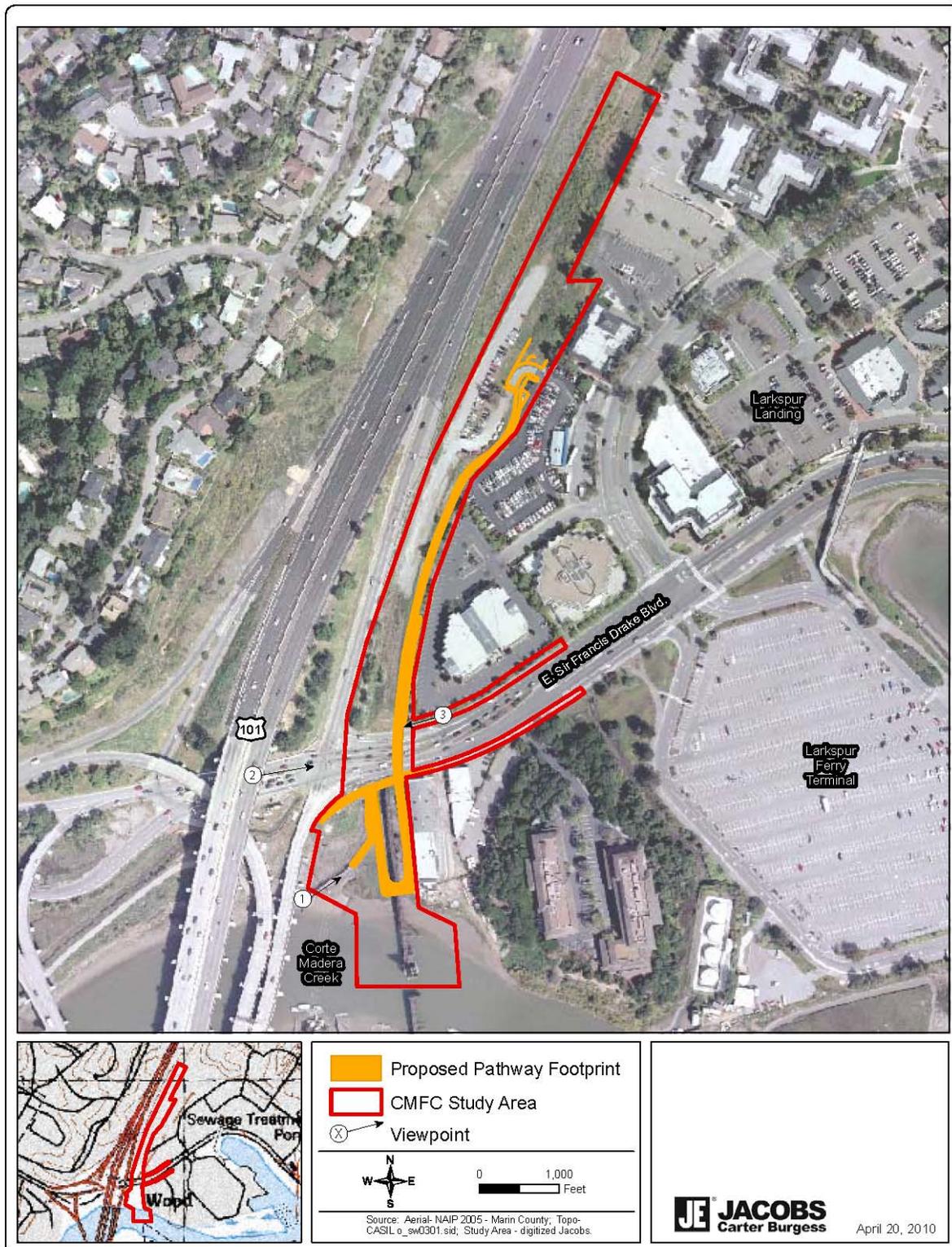
### **1.3. Project Need**

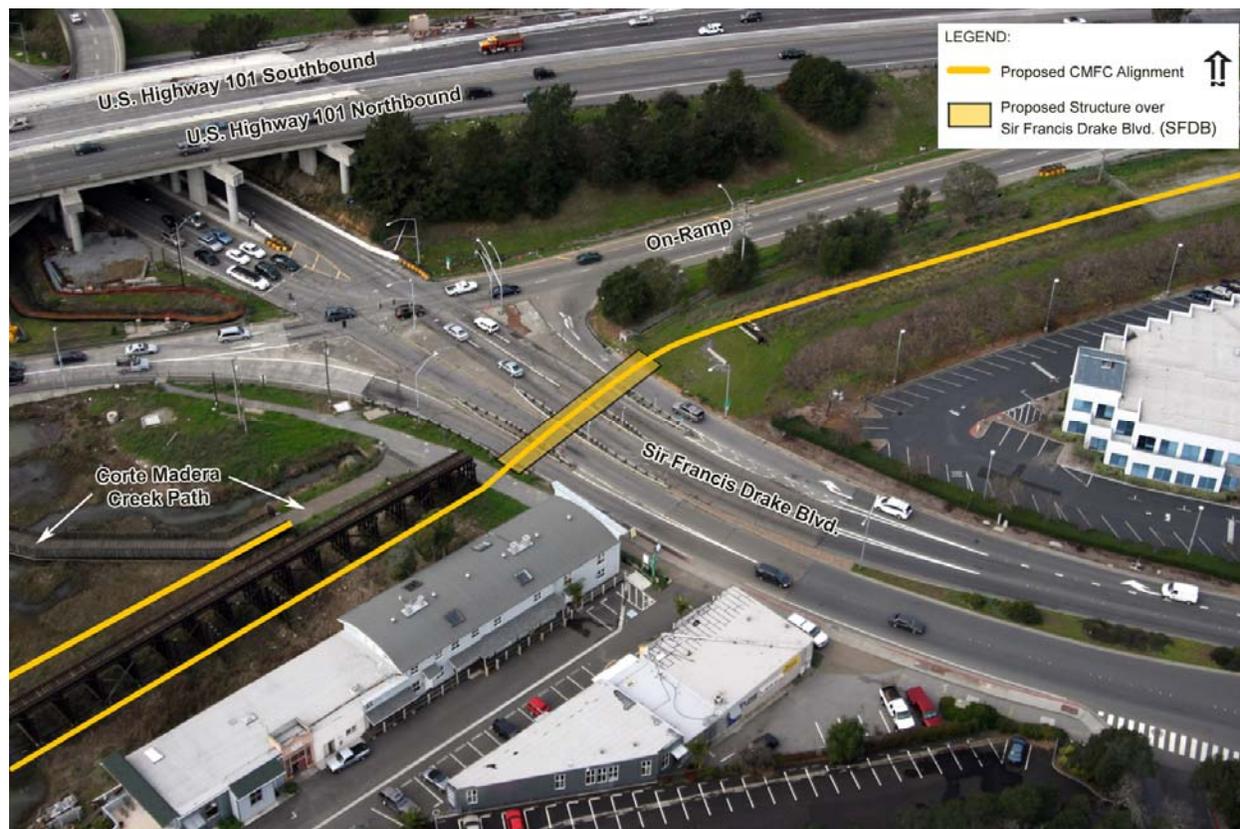
Currently, north/south non-motorized travel is difficult at the U.S. Highway 101/SFDB interchange because SFDB serves as a physical barrier between the Cal Park Hill Tunnel pathway, located north of SFDB, and the multi-use pathway, located on the south side of SFDB. Access to the multi-use pathway from the north side of SFDB requires travelers to cross the roadway at Larkspur Landing Circle, which is located approximately 800 feet to the east. Also, Corte Madera Creek and the adjacent salt marsh provide a unique habitat viewing area opportunity; however, access to points from which to view the creek and salt marsh are limited.

Figure 1: CMFC Phase I Project Study Area Map



Figure 2: CMFC Phase I Project Study Area and Viewpoint Locations



**Figure 3: U.S. 101 and Sir Francis Drake Boulevard—Aerial Photo**

#### 1.4. Project Background

The County of Marin identified the need to improve the U.S. Highway 101 corridor from the Tamalpais Drive interchange in the Town of Corte Madera to the SFDB interchange in the City of Larkspur (i.e., Greenbrae Corridor) as early as 1999. The need for improving the corridor was recognized as a high priority at the regional planning level and in 2004, with the approval of Regional Measure 2, funds were provided to further develop the improvements. In coordination with Caltrans, the Transportation Authority of Marin (TAM) engaged the public in a series of public workshops to identify public concerns and develop several alternatives using context sensitive design principles to integrate stakeholder input into the project development process. This included considering the physical setting as well as addressing community values as part of the public outreach process. In addition to identifying motorized transportation alternatives throughout the corridor, non-motorized commute alternatives for the U.S. Highway 101/SFDB interchange were developed, which included the improvements described in this proposed CMFC Phase I Project. The U.S. Highway 101/SFDB interchange serves a critical role in the Marin County multi-modal transportation network because it serves freeway and local traffic, access to cities east and west of U.S. Highway 101, the Larkspur Ferry Terminal, the Marin Airporter, Larkspur Landing, and business, residential, and commercial developments along Corte Madera Creek.

## 1.5. Project Description

TAM plans to construct the project in two phases. Phase I of the proposed project would construct a multi-use pathway adjacent to the east side of U.S. Highway 101 from post mile (PM) 14.7 to PM 15.3. Phase I would include an over-crossing structure above East SFDB and connect to the existing multi-use pathway traveling east along the south side of SFDB, and west along the Corte Madera Creek path. Phase I would connect to the southern limit of the Cal Park Hill Tunnel pathway to the north, which is currently under construction.

Phase II of the CMFC Phase I Project would extend the Phase I multi-use pathway to the south along the east side of U.S. Highway 101 to Wornum Drive and may include an over-crossing structure above Corte Madera Creek. Phase II would provide access to the Greenbrae Boardwalk and the Redwood Highway.

Once completed, the entire CMFC Phase I Project (i.e., Phases I and II) would provide a continuous multi-use pathway from the Cal Park Hill Tunnel pathway and the future SMART Larkspur Station in the north, to Wornum Drive in the south.

Phases I and II of the proposed project have independent utility with respect to each other because each would serve their own purpose and would occur regardless of whether the other phase was to occur. The independent utility analysis does not include the Cal Park Hill Tunnel Rehabilitation and Path Project because it is under construction and constitutes an existing condition. This Visual Assessment addresses the impacts of Phase I only.

The proposed CMFC Phase I Project would include the following construction activities for Phase I:

- Construct a new multi-use pathway that extends from the existing Cal Park Hill Tunnel pathway to East SFDB.
- Construct a new multi-use pathway overcrossing structure and approach ramps at East SFDB.
- Construct a new vehicle access ramp from the sidewalk on the north side of East SFDB to the new overcrossing.
- Construct an approach ramp for the multi-use path south of East SFDB with viewing areas above the salt marsh area and Corte Madera Creek.
- Construct a new access ramp that connects to the existing multi-use paths and repave a portion of the existing multi-use pathway located south of East SFDB from the Highway 101 northbound off ramp structure to the Larkspur Ferry Terminal entrance.
- Construct retaining walls at various locations along the multi-use path.

- Construct new sidewalks, curbs, and gutters along East SFDB.
- Install signage, striping, lighting, screening, handrails, fencing, landscaping, truncated domes and/or bollards.
- Construct storm water swales and detention basins.
- Remove or retrofit all or a portion of the existing railroad trestle.
- Relocate and protect existing utilities.
- Construct temporary access areas within the salt marsh and Corte Madera Creek.

### **1.6. Project Regulatory Requirements**

This Visual Impact Assessment technical memorandum, completed in April 2010, was prepared in accordance with Caltrans and FHWA guidance (U.S. DOT Order 5610.1c establishing general requirements for environmental impacts, and 23 CFR 771 *Environmental Impact and Related Procedures*) and Local Assistance Procedures Manual.

### **1.7. Visual Assessment Methods**

This visual impact study provides an assessment of the Study Area visual resources and viewer group perspectives, identifies possible impacts from the proposed CMFC Phase I Project Phase I Project, and provides broad brush mitigation strategies that could be considered to minimize the project's adverse impacts on scenic resources.

Guidelines in the Federal Highway Administration's *Visual Impact Assessment for Highway Projects* (March 1988) were referenced to organize this study. The manual provides a methodology to characterize the visual quality of existing resources, analyze the proposed project effect on these resources, and predict any degradation of this visual quality and the viewers' response. (See **Appendix A: Terminology** for definitions of common terms used in this manual.)

Generally, the visual impact assessment for the CMFC Phase I Project followed these steps:

1. Define the project setting, existing visual resources and landscape units of the Project Study Area.
2. Identify scenic routes and visual landmarks or vistas of regional importance seen within or from the project Study Area.
3. Identify city of Larkspur and Marin County plans and policies for visual quality.
4. Identify the project viewing audience and their typical viewpoint locations that are likely to be affected by the proposed project.

5. Identify the visual quality of viewsheds from viewing group viewpoint locations.
6. Analyze if the proposed project would degrade the visual resources viewed by viewer groups. Review design drawings and photo simulations of the proposed project within the viewer group viewsheds to predict the project's effects.
7. Propose strategies that may be considered to mitigate adverse effects.

### **1.7.1. Office Preparation**

Before field surveys were conducted, the project landscape architect met with project engineers and biologists to discuss the proposed CMFC Phase I Project design and visible changes it may cause to the existing environment, including vegetation. Local city and county land use plans were reviewed for community goals or policies concerning visual resources. The *City of Larkspur General Plan* and the *Updated Draft of the Marin Countywide Plan* provided this information. Public comments recorded from project public meetings were reviewed to help identify viewer groups and predict community response to visual changes caused by the proposed project.

### **1.7.2. Field Surveys and Data Collection**

The CMFC Phase I Project Phase I Study Area was viewed by car and by foot during daylight hours on August 13, 2009 to observe the project setting, identify visual character and scenic landmarks, observe typical viewer groups, and photograph key viewsheds. Photographs were taken from key audience viewpoints along roads and paths (see **Appendix B: Artistic Representations of 'Before' and 'After' Construction**). A variety of photos were taken of the Study Area to document the project setting and existing visual character (see **Appendix C: Site Photographs**).

Additionally, a tree survey was conducted in February 2009 by project biologists to determine which trees would be impacted during construction of the CMFC Phase I Project (**Appendix D: Tree Survey Map and Charts**). The survey identified the number, species, and location of trees that are larger than four-inches in diameter within areas of construction activities. A design evaluation was made to estimate what trees may be removed or significantly trimmed by project construction.

## **2.0 Affected Environment**

### **2.1. Project Setting and Existing Visual Resources**

Generally, the CMFC Phase I Project setting focuses on the crossroads of two regional travel ways and a navigable stream: U.S. Highway 101, Sir Francis Drake Boulevard (SFDB), and Corte Madera Creek, respectively. Project setting and landscape character are based on images of these regionally important corridors and land uses that have developed around them.

The majority of the Study Area is made-up of roadway, landscaped highway vegetation, railroad and natural creek shoreline. U.S. 101 and the railroad embankment within a wooden trestle run south

and north in this highly urbanized area of Larkspur. SFDB and Corte Madera Creek bisect the Study Area in an east–west direction. Corte Madera Creek is a large perennial creek open to boating and flows into the San Francisco Bay (the Bay) just east of the Study Area. The banks of Corte Madera Creek provide the only salt marsh habitat remaining in the Study Area and the creek is open to the public. The Corte Madera Creek path and East SFDB multi-use path link the east and west sides of Highway 101 for pedestrians and cyclists. The CMFC Phase I Project would provide a creek side path and boardwalk built above the coastal salt marsh, and would connect to the East SFDB and the creek’s multi-use paths.

U.S. 101 provides a north-south connection to the cities of San Francisco and Santa Rosa. Within the Study Area, U.S. 101 is not designated as a state scenic highway. East SFDB provides an eastward route to Interstate 580 and the San Rafael–Richmond Bay Bridge. To the west, Sir Francis Drake Boulevard serves as gateway to the Greenbrae community, the town of San Anselmo, and State Highway 1 leading to the Point Reyes National Seashore.

Before Larkspur and Corte Madera were incorporated and Marin County was established, Marin County began as large land grant ranches that provided water and lumber to the growing cities around San Francisco Bay. Larkspur provided a small port to transport these goods by boat around the Bay. In the late 1800s, the land grants were sold off as individual lots grouped as small communities, which later developed into the municipalities of Larkspur, Corte Madera, Greenbrae, and Mill Valley. To this day, residential and commercial buildings in the Study Area are primarily of low density and low building height, conveying small town characters as compared to the urban development in other San Francisco Bay cities.

Corte Madera Creek parallels East SFDB. The headwaters of Corte Madera Creek begin about 20 miles west of the Study Area in the coastal foothills next to Mount Tamalpais State Park and the Golden Gate Recreation Area. The creek has long been known regionally as a docking shore for house boats. The creek side path on its north shore provides a recreation trail for pedestrians and cyclists to view the creek, boat homes and salt marsh. Southeast of the Study Area and out of view from the CMFC project, the Corte Madera Shorebird Marsh and Ecological Preserve provides a sanctuary for shorebirds, rare plants and other wildlife. Larkspur Landing Ferry Terminal is approximately one block east of the Study Area, located between SFDB and the creek’s north shore.

### **2.1.1. Landscape Units**

There are three landscape units within the Study Area that are defined by natural topographic features and the two transportation corridors. The landscape units include the natural resources and highway bridge undersides along the Corte Madera Creek corridor, the highway corridor of U.S. 101, and the urban street corridor of East SFDB with its mixed-use commercial land uses facing the street. (See **Figure 1** and **Figure 2** for the Study Area location.)

## 2.2. Viewing Audience

The viewing audience includes two groups that are categorized by what they can see as they move through the project Study Area. The first group includes motorists that could view the CMFC Phase I Project pedestrian structure from Highway 101 or SFDB. The second group includes commuters, residents, employees or owners of commercial business, and recreational viewers who pass through the area on foot, by bicycle or boat, or as visitors to viewpoints to view Mt. Tamalpais or Corte Madera Creek.

### 2.2.1. Community Goals for Visual Quality

The sensitivity of these viewer groups toward changes in the area's visual resources was assessed by review of the general community development plans and policies set by Marin County and the City of Larkspur. Both local governments have visual resource goals and policies intended to preserve, enhance, restore and respect scenic views and landmarks within each jurisdiction. The policies address views toward scenic natural environments, such as ridgelines, wooded hillsides, the salt marsh area, Corte Madera Creek, and the Bay, and call for scenic view preservation and enhancement. See **Appendix E:** Error! Reference source not found. for a summary table describing Marin County's and Larkspur's plans and policies for scenic and visual resources.

## 2.3. Scenic Routes, Visual Landmarks, and Important Vistas

Mt. Tamalpais, San Francisco Bay, and Corte Madera Creek are considered regional landmarks and views toward these scenic natural resources are considered valuable to the community. Mt. Tamalpais, Corte Madera Creek and San Francisco Bay are visible from northbound U.S. 101, East SFDB, and the Corte Madera Creek path. The Corte Madera Shorebird Marsh and Ecological Preserve is southeast and out of view from the CMFC Phase I Project Phase I Study Area.

## 2.4. Visual Quality of Viewer Group Viewsheds

Three viewpoints toward Mt. Tamalpais and Corte Madera Creek were selected to represent the viewsheds that may be valued by project viewer groups. The perspectives of motorists, bicyclists and pedestrians were considered in each viewpoint selection. The three views are shown in **Appendix B: Artistic Representations of 'Before' and 'After' Construction**, and their visual qualities are described below:

### 2.4.1. View #1—Motorist's view from northbound U.S. 101 looking east toward East SFDB

US 101 motorists can catch glimpses of Corte Madera Creek and SFDB while traveling northbound at highway speeds. These views are partially obscured by the highway bridge railing.

Vividness: Because the motorists' views are quick (less than five seconds of viewing time when traveling at highway speeds) and partially obscured by the highway bridge railing, View #1 does not

have the visual power to create distinct memories for U.S. 101 motorists. The vividness rating for View #1 is low.

Intactness: The visual integrity of the natural hill landform is relatively intact due to preservation of natural ridgelines and the complementary form and color of the adjacent office building, but there has been some intrusion to this view. Bright colored roadway elements in the foreground and some commercial buildings in the middle ground break up the intactness of this view. Intactness is rated moderate for View #1.

Unity: The arrangement of East SFDB and commercial buildings is in relative harmony with the natural vegetation, topography and hill forms, Corte Madera Creek and the salt marsh. Unity is rated moderate for View #1.

#### **2.4.2. View #2—Motorist’s view from westbound East SFDB looking toward U.S. 101 and Mt. Tamalpais**

Westbound motorists and multi-use path users on East SFDB can view Mt. Tamalpais in the distance just before passing under the U.S. 101 overpass structure.

Vividness: The multi-use path users’ and motorists’ views of Mt. Tamalpais are partially blocked by the highway bridge spans set over East SFDB. Contrast between the visually dominating highway bridges and the distant view of Mt. Tamalpais creates a very brief but memorable visual image. The vividness for View #2 is rated moderate to high.

Intactness: The dominant view of highway structures screens, blocks and intrudes on the view of Mt Tamalpais from East SFDB. Intactness rating is low for View #2.

Unity: The design form, color, and height of highway elements, especially the highway overpass, do not enhance the motorists’ view of Mt. Tamalpais. Unity rating is low for View #2.

#### **2.4.3. View #3—Pedestrians’ view from the U.S. 101 Off-Ramp Sidewalk looking toward East SFDB**

Pedestrians and bicyclists travel relatively slowly along the sidewalk on the northbound U.S. 101 off-ramp bridge over Corte Madera Creek. They can stop and reflect on the view of Corte Madera Creek and the East SFDB area, including the salt marsh in the foreground, the boulevard, the wood railroad trestle, the office buildings in the middle ground, and the San Francisco Bay in the distance. Motorists traveling the off ramp would see the same view but would have less time to experience it.

Vividness: The most striking image of this view is the wood railroad trestle and drawbridge protruding into the saltwater marsh and creek water, with a low profile office building set upon the forested hillside behind it. Vividness is rated moderate for View #3, which is primarily available to pedestrians.

**Intactness:** The visual integrity of the natural landforms (creek and hills) is relatively intact due to preservation of the salt marsh in the foreground, the naturally wooded ridgeline profile in the middle ground and the Bay in the distance. Intactness is rated moderate for View #3.

**Unity:** The landscape arrangement of the wood railroad trestle, the boulevard, and the creek path boardwalk are not visually integrated with views of the natural landforms, but appear to be located solely for functional reasons. The exception is the office building. Its building form and site design is integrated into the hillside's landform, vegetation, and color. Unity is rated moderate for View #3.

## **3.0 Results**

### **3.1. Assess Project Impacts**

The visual impacts of the proposed CMFC Phase I Project were determined by assessing the visual resource change for Phase I of the project and predicting viewer response to that change.

#### **3.1.1. Assess Change in Visual Resource and Visual Quality**

Views toward the regional landmarks of Mt. Tamalpais, Corte Madera Creek and the San Francisco Bay are considered scenic and valuable to the community. Three views toward Mt. Tamalpais, or Corte Madera Creek were selected to present an artistic representation of the proposed project because they represent typical views toward these landmarks for representative viewer groups. To develop these sketches, project design drawings were used to create three dimensional models of the proposed project. The models were used to prepare sketches and then inserted onto photos of the existing conditions for each view. Images of "before and after construction" conditions were analyzed to determine if there would be any change in visual resources and visual quality. See **Appendix B** for descriptions of the selected viewpoints, photos taken from these locations, and the artistic representation of the CMFC Phase I Project.

#### **3.1.2. Potential Bridge Styles**

Two dramatically different pedestrian bridge styles are presented as examples of different approaches to the CMFC Phase I pedestrian bridge design. Option A is a basic bridge form meant to minimize its effect on the Study Area's visual quality and to blend into the landscape. Option B represents a bridge form that makes a strong architectural statement. Its design is meant to draw attention to itself and become a landmark or signature to the CMFC Phase I Project location. See **Appendix B** for artistic representations of the basic and signature bridge styles after construction.

It is not the intent of this visual impact study to select or recommend a bridge style for the CMFC Phase I Project crossing structure; that will be done in later phases of project design, but to analyze the effect that a basic or signature bridge style would have on existing visual resources. Project materials, light fixtures, colors, and other aesthetic features are not shown in the artistic representations. They will be developed in later design phases.

Option A is a simple beam bridge design. Beam bridges are the most common type of bridge used for highways and multi-use path crossings. Their structure is typically made of concrete, steel, or a mixture of the two, and can be faced with masonry, textured concrete, or other aesthetic treatments. The existing U.S. 101 bridges that cross over Corte Madera Creek and East SFDB are beam bridges. A basic CMFC Phase I Project bridge design may include a concrete bridge span supported by abutment walls placed outside of the East SFDB sidewalk. The bridge approach ramp would be supported by piers set in the salt marsh area. See **Views #1, #2–Option A, and #3 in Appendix B** for artistic representations of a basic bridge style.

Option B is a more unusual bridge design that would be visibly unique for a pedestrian bridge at this location. Although the bridge style pictured in the post-construction sketches looks like a cable-stay bridge, the intent of this sketch is to portray any bridge style that makes an architectural statement. The bridge could include tall towers visible from a distance. A signature style bridge would contrast with U.S. 101 bridge forms, as well as the natural form, pattern and texture of Corte Madera Creek and adjacent hillside. A signature bridge style would present a unique and memorable image for this Study Area. It would likely strengthen the vividness characteristic of each view. See **View #2–Option B in Appendix B** for an artistic representation of a potential signature style bridge.

Any bridge style considered for this project will meet the structural and safety design requirements to carry multi-use path users safely across East SFDB. Both the bridge and approach ramp would have pedestrian railing. Where the bridge crosses over East SFDB, a screen would be added above the railing. Pedestrian scale light fixtures would be located on the multi-use path, bridge and ramp.

### **3.1.3. Impact Assessment for View #1–Motorists’ View from northbound U.S. 101 looking east toward SFDB and proposed CMFC Phase I Project pedestrian bridge.**

The proposed CMFC Phase I Project pedestrian bridge over East SFDB was added to View #1. The proposed bridge is shown to cross over East SFDB and lower gradually to ground level by encircling the existing wood railroad trestle while remaining above the salt marsh and outside of the open water of Corte Madera Creek.

Vividness: Because the motorist’s view will remain quick, this view would not have the visual power to create distinct memories for U.S. 101 motorists. The vividness of View #1 would remain as a low rating.

Intactness: The visual integrity of natural landforms would remain relatively intact. There would be no change to the moderate intactness rating for View #1.

Unity: The new CMFC Phase I Project bridge and approach ramp would displace only a part of the wood railroad trestle. It would be built over the salt marsh on piers without adding walls or fill in the marsh. The ramp would provide a viewing area overlooking the marsh, trestle and creek. These

design strategies would help integrate this new man-made structure into the existing natural image of the creek shoreline.

The linear form of the new CMFC Phase I bridge would match the linear form of the grassy hills on the horizon and the forested hillside behind the bridge, adding a visually pleasing pattern of linear man-made and natural forms to this view. The unity rating for View #1 would remain as moderate.

Overall the visual quality of View #1 would be enhanced for northbound motorists. During the brief glance motorists would have of the project, the repeated linear patterns of man-made structures within preserved natural features would help to unify this view. The proposed CMFC Phase I Project pedestrian bridge would maintain View #1's moderate rating but with some improvement.

#### **3.1.4. Impact Assessment for View #2—Motorists' views from westbound SFDB looking toward U.S. 101 and Mt. Tamalpais**

The proposed CMFC Phase I Project pedestrian bridge over East SFDB was added to View #2. The bridge is shown to cross over East SFDB and lower gradually to ground level between the wood railroad trestle and the adjacent two-story commercial building. A basic beam bridge style is shown with a pedestrian railing and a nine-foot tall screen as required for pedestrian bridges that cross urban highways.

Vividness: The proposed CMFC Phase I Project pedestrian bridge in front of U.S. 101 bridges would reduce the amount of time that motorists would be able to see Mt Tamalpais. The vividness rating for View #2 would be reduced to low.

Intactness: The visual integrity this view of the natural ridgeline in the distance would be degraded by adding the CMFC Phase I Project bridge in the foreground. Man-made elements would dominate over the view toward Mt. Tamalpais, especially as viewed from a moving car. View #2's intactness rating would remain as low.

Unity: The dominant foreground view of the CMFC Phase I Project pedestrian bridge built in front of U.S. 101 would add a repeated pattern to what would become a view of highway style bridges structures. Visual integrity would be strengthened and the unity rating would be elevated to a moderate level.

The overall visual quality rating for View #2 would not change with the addition of the proposed CMFC Phase I Project pedestrian bridge to the foreground. Although the placement of the bridge span intends to preserve motorists' views to the regional landmark Mt. Tamalpais, and the bridge form repeats the image of US 101 bridges, this visual unity improvement only slightly compensates for the decreased visibility of Mt Tamalpais.

### **3.1.5. Impact Assessment for View #3—Pedestrian’s view from U.S. 101 Off-Ramp Sidewalk looking toward SFDB**

The proposed CMFC Phase I Project pedestrian bridge over East SFDB was added to this view. The bridge is shown to cross over East SFDB and lower gradually to ground level by encircling the existing wood railroad trestle, then span over the salt marsh area on an elevated boardwalk (see **Appendix B**).

Vividness: The striking image of the wood railroad trestle would be partially removed and replaced by the proposed CMFC Phase I Project pedestrian bridge. CMFC Phase I Project’s basic bridge style and long approach ramp mimics the linear form of the railroad trestle and office building behind it. The repetition of man-made and natural forms would help unify View #3 but without increasing the view's intensity or visual power. The vividness rating for View #3 would remain as moderate.

Intactness: The visual integrity of Corte Madera Creek and salt marsh area from this view point would be enhanced by the bridge because a linear bridge form would harmonize with the wooded hillside, grassy ridgeline, the wood railroad trestle, and office building behind it. They all have similar colors and forms. Visual qualities for intactness would improve from a moderate to high rating.

Unity: The CMFC Phase I Project pedestrian bridge would result in removal of a portion of the wood railroad trestle and would open up pedestrians’ view toward the creek and forested hill in the background. Unity would be strengthened from a moderate to a moderate to high rating.

Overall, the visual quality of View #3 for pedestrians and motorists traveling the northbound U.S. 101 off-ramp would be improved.

### **3.1.6. Impact Analysis for Bridge Style Options**

In comparing the impacts from the two bridge style options, the signature bridge (Option B) would be visibly unique for a pedestrian bridge at this location. Bridge towers would be visible from a distance, as well as from the three viewpoints featured in this visual impact assessment. A signature bridge style would contrast with U.S. 101 bridge form and the natural images of Corte Madera Creek. A signature bridge could present a unique and memorable image for this Study Area and become a regional landmark for Larkspur, Corte Madera Creek and Marin County’s multi-modal transportation network. It could enhance the vividness quality of the Study Area.

Option A, the basic beam bridge style, would match the style of adjacent US 101 bridges. Its linear form would be like that of the wood railroad trestle and the office building to the east. With the addition of color and aesthetic features, a basic bridge style could harmonize with the natural and man-made elements around it.

### 3.1.7. Visual Quality Impact Summary

A general assessment of potential change in the Study Area's visual quality can be made by comparing the change of each view's vividness, intactness and unity ratings. These changes are collected in **Table 1**.

**Table 1: Changes in Visual Quality Ratings for Views #1, #2 and #3**

	View #1		View #2		View #3	
	Existing condition	After construction	Existing condition	After construction	Existing condition	After construction
Vividness	Low	Low	Moderate to high	Low	Moderate	Moderate
Intactness	Moderate	Moderate	Low	Low	Moderate	Moderate to high
Unity	Moderate	Moderate	Low	Moderate	Moderate	Moderate to high
Change in Visual Quality	No change		No change		Improved	

The visual quality of View #3, from the northbound U.S. 101 off-ramp toward East SFDB and the salt marsh area and creek, would slightly improve for motorists, but most of all for pedestrians and bicyclists who use this route to cross Corte Madera Creek and travel more slowly than motorists. There would be no change in the visual quality ratings for motorists who would view the proposed project from U.S. 101 (View #1) or from westbound SFDB (View #2).

### 3.2. Predicting Viewer Response and Mitigation Strategies

Viewer response is predicted from an analysis of the viewer's sensitivities and the viewer's exposure. These elements combine to form a prediction of how project viewer groups might react to the visual change created from the proposed project.

Below are the applicable visual resource goals and policies from the Larkspur and Marin County land use plans. Applying these goals and policies to the CMFC Phase I Project as viewed in the three artistic representations will help evaluate the viewers' sensitivity to visual changes caused by the proposed project. **Table 2** and **Table 3** provide a predicted response to each plan or policy.

**Table 2: Proposed Project Evaluation in accordance with City of Larkspur General Plan**

Applicable Land Use Plan, Goal or Policy	View #1	View #2	View #3
<i>City of Larkspur General Plan</i>	1 = Does not meet goal / policy. 5 = Strongly meets goal / policy.		
<b>Land Use:</b> Ensure that new development in Greenbrae East retains a sense of the area's physical setting by providing vistas of the ridgelines and access to the adjacent creek, marshlands, and the Bay beyond. ( <i>Policy P</i> )	5	5	5
<b>Land Use:</b> On those lots where development or redevelopment is expected to occur, integrate natural features into new development, to the greatest extent reasonably feasible. ( <i>Goal 13</i> )	3	3	3
<b>Community Character:</b> Preserve the desirable features of the built environment as well as the remaining natural environment-trees, marshes, creeks, hillsides-as components of Larkspur's community character and identity. ( <i>Policy B</i> )	4	5	5
<b>Community Character:</b> Visually integrate the various sections of the community. ( <i>Policy D</i> )	4	3	4
<b>Circulation:</b> Ensure that transportation facilities do not impinge upon irreplaceable resources (such as Corte Madera Creek, the Bay and its shoreline, important open space lands, and recreational facilities). ( <i>Policy AG</i> )	4	4	4
<b>Environmental Resources:</b> Increase visual access to the Bay and Corte Madera Creek. ( <i>Policy F</i> )	5	5	5

The proposed CMFC Phase I Project meets the goals and polices of the *City of Larkspur General Plan* in the following ways:

- The CMFC Phase I Project would “retain a sense of the area’s physical setting by providing vistas of the ridgelines and toward Mt. Tamalpais from the top of the bridge over East SFDB.”
- CMFC Phase I Project’s connection to the Corte Madera Creek multi-use path will provide “access to the adjacent creek and marshland.”
- The CMFC Phase I bridge and ramp plan is designed to bridge over the salt marsh area on piers and avoid spanning over the creek, thus ensuring that this transportation facility would not “impinge upon irreplaceable resources, such as Corte Madera Creek and its shoreline” and would preserve the natural environment as “components of Larkspur’s community character and identity.”
- There is the opportunity for the CMFC Phase I Project to integrate aesthetics of other Larkspur bridges (such as the Bon Air Bridge) to help “visually integrate the various sections of the community.”

**Table 3: Proposed Project Evaluation in accordance with Marin Countywide Plan**

Applicable Land Use Plan, Goal or Policy	View #1	View #2	View #3
<i>Marin Countywide Plan Updated Draft</i>	1 = Does not meet goal / policy. 5 = Strongly meets goal / policy.		
<b>Preserve Visual Quality.</b> Protect scenic quality and views of the natural environment – including ridgelines and upland greenbelts, hillsides, water, and trees—from adverse impacts related to development. ( <i>Design-Policy DES4.1</i> )	5	2	5
<b>Minimize Visual Impacts of Public Facilities.</b> Amend applicable codes and procedures of the Development Code to require appropriate placement, design, setbacks, and native landscaping of public facilities (including sound walls, medians, retaining walls, power lines, and water tanks) to reduce visual impacts, and encourage local agencies to adopt similar standards. ( <i>Design-Implementation Program DES-4.b</i> )	3	4	3
<b>Regulate Mass and Scale.</b> Ensure that the mass and scale of new structures respects environmental site constraints and character of the surrounding neighborhood are compatible with ridge protection policies and avoid tree-cutting (especially on wooded hillsides) and grading wherever possible. ( <i>Design-Implementation Program DES-4.c</i> )	5	3	5
<b>Attractive and Functional Streets and Parking Areas.</b> Design automobile use areas to fit the character of the community and comfortably accommodate travel by pedestrians and bicyclists, while still meeting health, safety, and emergency access needs. ( <i>Design-Goal DES-5</i> )	5	5	5

The proposed CMFC Phase I Project meets the goals and policies of the *Marin Countywide Plan* in the following ways:

- It would provide Marin County with an “attractive and functional street to accommodate pedestrians and bicyclists.”
- It would preserve Marin County’s visual quality by “protecting views of the natural environment.” New viewing opportunities toward Corte Madera Creek, Mt. Tamalpais, and the Bay would be provided from the CMFC Phase I pedestrian bridge overlooking East SFDB, Corte Madera Creek and the salt marsh area.

### 3.3. Visual Impacts from Lighting and Glare and Mitigation Strategies

The proposed project includes pedestrian scale lighting for night-time use of the bridge and path. If an acorn or globe-shaped lamp, set on a light pole, is selected to light the bridge deck, this lamp style

would provide light in all directions producing glare for East SFDB motorists and reduce sky visibility for bridge users.

Construction activities are anticipated to occur primarily during daylight hours, but if work is required at night with construction lighting, glare and light pollution would temporarily affect visibility.

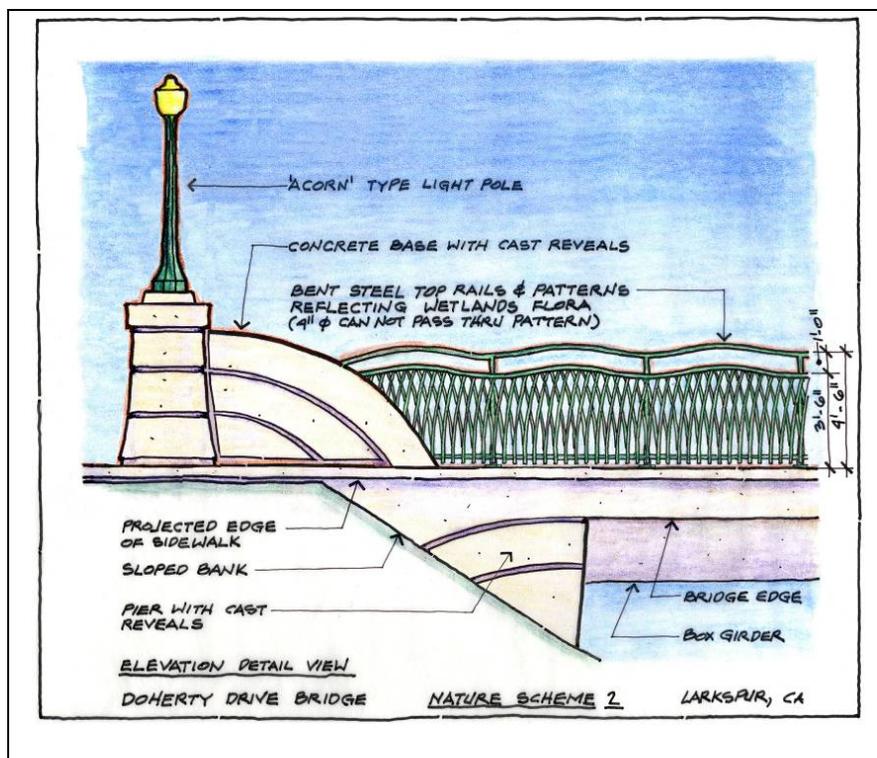
### **3.4. Mitigation Strategies**

The following mitigation strategies were developed to further improve the project to fully meet the land use policies of Larkspur and Marin County:

- Employ bridge design strategies that retain more visibility of Mt Tamalpais from East SFDB and enhance pedestrian and cyclist's viewing opportunities to Corte Madera Creek. These strategies may include minimizing the width of the bridge span as much as feasible and using semi-transparent railing and screen.
- To minimize glare from path lighting, use lamps that direct light toward the path. Examples of these features include light shields or low level lighting to redirect light away from motorists, homes, businesses and the sky.
- If night-time construction is needed, procedures will be taken to direct the light inward toward the construction site and minimize glare for motorists near the site.
- Replace trees and shrubs removed and re-seed areas disturbed by construction.
- Develop bridge aesthetics that harmonize with the natural color, texture, and form of Corte Madera Creek, salt marsh, and the distant ridgelines.
- Integrate details and aesthetics from other bridges in Larkspur to help “visually integrate the various sections of the community.”

TAM is coordinating with the City of Larkspur regarding the aesthetics of the East SFDB crossing structure. Larkspur is currently designing the Bon Air Bridge located on Bon Air Road. A concept level sketch of that bridge is shown in **Figure 4**.

**Figure 4: Details of Aesthetic Features for the Bon Air Bridge, Larkspur, CA**



### 3.5. Visual Impacts from Temporary Loss of Trees during Construction and Mitigation Strategies

Currently a tree and shrub planting area can be seen between the U.S. Highway 101 northbound East SFDB on-ramp and an adjacent office park. It serves to screen views to the highway from the office building and to screen views to the building's parking lot from U.S. 101. The trees and shrubs on the west side of this area may be removed by construction of the proposed pathway. A tree survey was conducted in February 2009 to determine the number of trees within the project construction area. This survey mapped and recorded the location, size and species of all trees over four inches in diameter at breast height (DBH). The study determined that there are approximately 47 trees and one shrub that may be removed from the construction zone of the CMFC Phase I Project Phase I Project. The tree species include coastal live oak (16), bay (7), acacia (3), olive (1), and ornamental fruit trees (20), and their sizes range between 4 and 30-inch DBH. Of the 47 trees removed, seventeen coastal live oak and seven bay trees may be considered as "protected trees" in accordance with Marin County Ordinance No. 3342. See **Appendix D** for a map and list of trees to be removed within the CMFC Phase I Project construction area.

Excavation and construction of the pedestrian bridge and path would impact these trees and other vegetation between the path alignment and the office parking lot to the east. As a result, temporary visual impacts from the loss of trees would be likely. These impacts would be during construction time frame and project measures would be taken to ensure the site is returned to pre-construction conditions as much as possible. These activities may include, but not be limited to, site grading and seeding, trimming trees and shrubs lightly damaged by construction, site clean-up, and replacement of trees, shrubs, and ground cover. Therefore, the project construction activities would have an overall minimal impact on the visual quality of the existing vegetation.

#### **4.0 Conclusions**

This report presents the preliminary determination that substantial permanent visual impacts resulting from the proposed CMFC Phase I Project to the Study Area and surrounding land uses are unlikely to occur. The addition of a multi-use pathway with bridge over East SFDB will not cause permanent impact to the scenic resources valued by the City of Larkspur and Marin County.

Construction activities may create short-term negative visual impacts through the removal of trees, shrubs, and groundcover. However, these impacts would be temporary.

In many ways the CMFC Phase I Project will improve opportunities for multi-path users to enjoy the scenic resources of the project area. It will provide vistas toward ridgelines and two regional landmarks (Mt. Tamalpais and Corte Madera Creek) from new viewing areas on the CMFC Phase I bridge and ramp. And it will increase public access to Corte Madera Creek by connecting to the existing boardwalk over the salt marsh and the Corte Madera Creek path.

To mitigate for some of the adverse impacts, the project should include installation of pedestrian lighting with shields that direct light down toward the path and bridge deck. This would minimize glare for motorists on U.S. 101 or East SFDB, and nuisance light to the adjacent office and retail businesses.

Other strategies to mitigate for these impacts include:

- Employ bridge design strategies (such as using semi-transparent pedestrian rail and screen on the bridge, minimizing bridge span thickness, and avoid placing signs on the bridge that block views) would help retain the view of Mt. Tamalpais from East SFDB and enhance pedestrian and cyclist's viewing opportunities to Corte Madera Creek.
- Replace trees and shrubs removed and re-seed areas disturbed by construction.
- Incorporate bridge details that complement the natural setting of the Corte Madera Creek.

## 5.0 References

- 23 CFR 771 *Environmental Impact and Related Procedures*
- Federal Writers Project of the Work Progress Administration of California. *California: Guide to the Golden State*. Hastings House Publishers, New York, N/Y. 1939.
- California Department of Transportation (Caltrans) and Federal Highway Administration (FHWA) guidance; U.S. DOT Order 5610.1c.
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- Jacobs Carter Burgess. *Tree Survey of Construction Activity Areas for the Central Marin Ferry Connection* (draft), July 2009.
- Jacobs Carter Burgess. *Preliminary Environmental Analysis Report for Highway 101 580 Greenbrae / Twin Cities Corridor Improvement Project* (draft), June 2009.
- *Native Tree Preservation and Protection Ordinance No. 3342*, Chapter 22.75; Marin County, C.A.
- Nicholas, Karla J. *Highway 101 580 Greenbrae / Twin Cities Corridor Improvement Project Visual / Aesthetic Technical Memorandum*. August 2007.

## **Appendix A: Terminology**

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### **Terminology for FHWA Visual Assessment Methods**

To assess the visual resources and viewer attitudes for the Central Marin Ferry Connection (CMFC Phase I Project) Project, this technical memorandum generally follows the guidelines described in the *FHWA Method of Visual Resource Analysis*. Common terms and methods to identify visual character and quality, and assess impacts are described below:

#### **Project Setting**

The regional landscape establishes the general visual environment of the project, but the specific visual environment upon which this assessment will focus is determined by defining landscape units and the project viewshed.

#### **Landscape Units**

A landscape unit is a portion of the regional landscape and can be thought of as an outdoor room that exhibits a distinct visual character. A landscape unit will often correspond to a place or district that is commonly known among local viewers.

#### **Project Viewshed**

A viewshed is a subset of a landscape unit and is comprised of all the surface areas visible from an observer's viewpoint. The limits of a viewshed are defined as the visual limits of the views located from the proposed project. The viewshed also includes the locations of viewers likely to be affected by visual changes brought about by project features.

#### **Method to Identify Visual Character**

Visual character is descriptive and non-evaluative, which means it is based on defined attributes that are neither good nor bad in them. A change in visual character cannot be described as having good or bad attributes until it is compared with the viewer response to that change. If there is public preference for the established visual character of a regional landscape and resistance to a project that would contrast that character, then changes in the visual character can be evaluated.

#### **Method to Assess Visual Quality**

Visual quality is evaluated by identifying the vividness, intactness, and unity present in the viewshed. The FHWA states that this method should correlate with public judgments of visual quality well enough to predict those judgments. This approach is particularly useful in highway planning because it does not presume that a highway project is necessarily an eyesore. This approach to evaluating visual quality can also help identify specific methods for mitigating each adverse impact that may occur as a result of a project. The three criteria for evaluating visual quality can be defined as follows:

**Vividness** is the visual power or memorability of landscape components as they combine in distinctive visual patterns.

**Intactness** is the visual integrity of the natural and man-built landscape and its freedom from encroaching elements. It can be present in well-kept urban and rural landscapes, as well as in natural settings.

**Unity** is the visual coherence and compositional harmony of the landscape considered as a whole. It frequently attests to the careful design of individual manmade components in the landscape.

### **Methods of Predicting Viewer Response**

Viewer response is composed of two elements: viewer sensitivity and viewer exposure. These elements combine to form a method of predicting how the public might react to visual changes brought about by a highway project.

**Viewer sensitivity** is defined both as the viewers' concern for scenic quality and the viewers' response to change in the visual resources that make up the view. Local values and goals may confer visual significance on landscape components and areas that would otherwise appear unexceptional in a visual resource analysis. Even when the existing appearance of a project site is uninspiring, a community may still object to projects that fall short of its visual goals. Analysts can learn about these special resources and community aspirations for visual quality through citizen participation procedures, as well as from local publications and planning documents.

**Viewer exposure** is typically assessed by measuring the number of viewers exposed to the resource change, type of viewer activity, duration of their view, speed at which the viewer moves, and position of the viewer. High viewer exposure heightens the importance of early consideration of design, art, and architecture and their roles in managing the visual resource effects of a project.

### **Method of Assessing Project Impacts**

The visual impacts of project alternatives are determined by assessing the visual resource change due to the project and predicting viewer response to that change.

Visual resource change is the sum of the change in visual character and change in visual quality. The first step in determining visual resource change is to assess the compatibility of the proposed project with the visual character of the existing landscape. The second step is to compare the visual quality of the existing resources with projected visual quality after the project is constructed.

The viewer response to project changes is the sum of viewer exposure and viewer sensitivity to the project as determined in the preceding section.

The resulting level of visual impact is determined by combining the severity of resource change with the degree to which people are likely to oppose the change.

**Definition of Visual Impact Levels**

**Low**-Minor adverse change to the existing visual resource, with low viewer response to change in the visual environment. May or may not require mitigation.

**Moderate**-Moderate adverse change to the visual resource with moderate viewer response. Impact can be mitigated within five years using conventional practices.

**Moderately High**-Moderate adverse visual resource change with high viewer response or high adverse visual resource change with moderate viewer response. Extraordinary mitigation practices may be required. Landscape treatment required will generally take longer than five years to mitigate.

**High**-A high level of adverse change to the resource or a high level of viewer response to visual change such that architectural design and landscape treatment cannot mitigate the impacts. Viewer response level is high. An alternative project design may be required to avoid highly adverse impacts.

## Appendix B: Artistic Representations of 'Before' and 'After' Construction



View #1—Existing Conditions:  
Motorists' view from northbound U.S. 101 looking east toward East SFDB.



View #1—After Construction:  
Motorists' view from northbound U.S. 101 looking east toward East SFDB.



View #2–Existing Conditions:  
Motorists’ view from westbound East SFDB looking toward U.S. 101 and Mt. Tamalpais.



View #2–Option A Bridge Style After Construction :  
Motorists’ views from westbound East SFDB looking toward U.S. 101, Mt. Tamalpais and proposed CMFC Phase I pedestrian bridge



View #2–Existing Conditions:  
Motorists’ view from westbound East SFDB looking toward U.S. 101 and Mt. Tamalpais.



View #2–Option B Bridge Style After Construction :  
Motorists’ views from westbound East SFDB looking toward U.S. 101, Mt. Tamalpais and proposed CMFC Phase I pedestrian bridge



View #3–Existing Conditions:  
Pedestrians’ view from the U.S. 101 off-ramp sidewalk looking toward East SFDB.



View #3–After Construction:  
Pedestrians’ view from U.S. 101 off-ramp sidewalk looking toward East SFDB and proposed CMFC Phase I pedestrian bridge

## Appendix C: Site Photographs



View from hillside on north side of East SFDB looking south toward the location of the proposed CMFC Phase I pedestrian bridge.



View from south side of East SFDB looking west toward pedestrian connection to sidewalk on U.S. 101 northbound off-ramp.

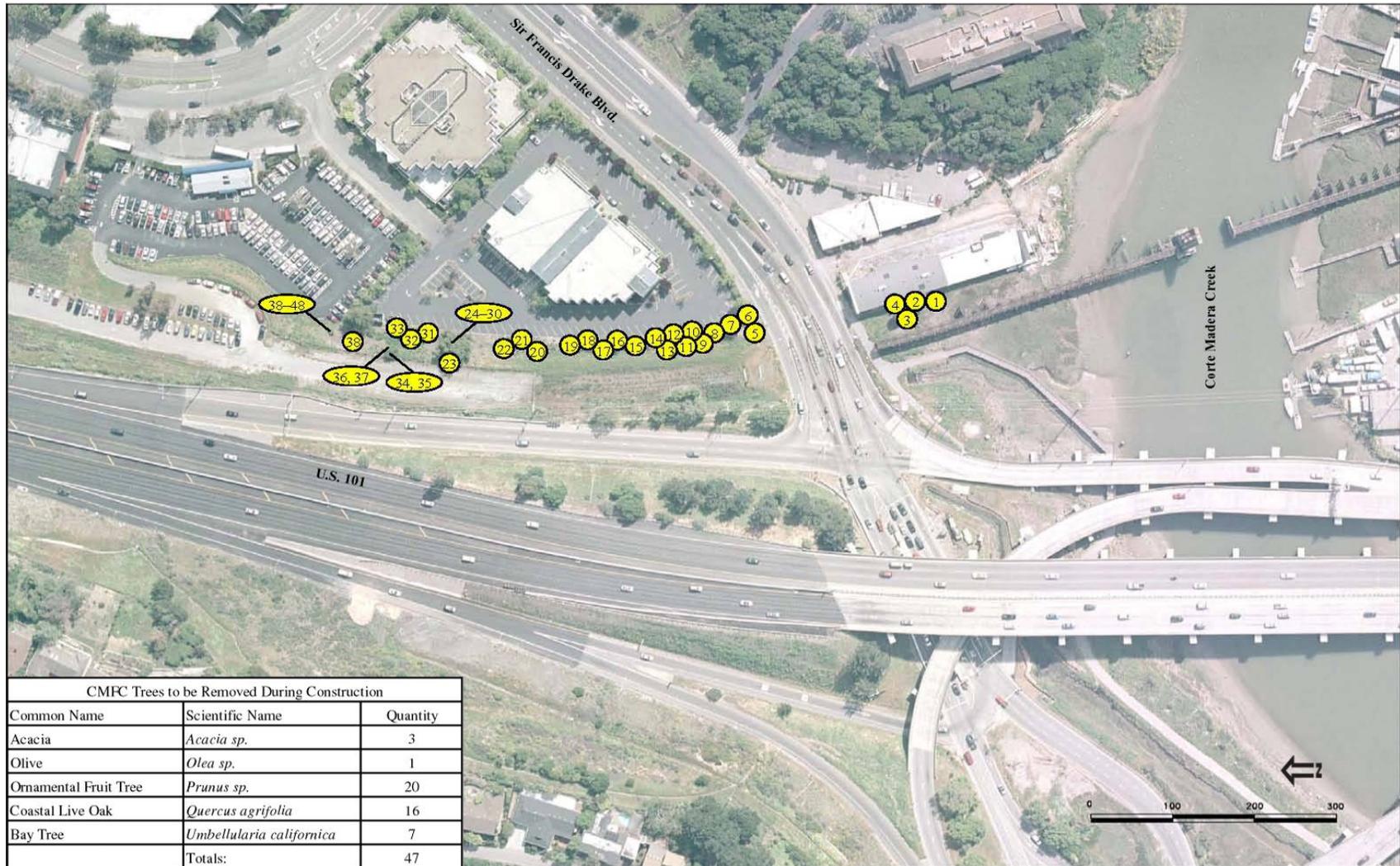


View from Corte Madera Creek path, under U.S. 101, looking east toward location of proposed CMFC Phase I pedestrian bridge.



View from south side of East SFDB looking southwest toward proposed location for CMFC Phase I bridge landing and its connection to Corte Madera Creek.

Appendix D: Tree Survey Map and Charts





**CMFC Phase I Project Trees and Shrubs to be Removed During Construction**

<b>Tree Location on Map</b>	<b>Tree Scientific Name</b>	<b>Tree Common Name</b>	<b>DBH</b>
1	<i>Acacia</i> sp.	Acacia	10
2	<i>Acacia</i> sp.	Acacia	14
3	<i>Acacia</i> sp.	Acacia	14
4	<i>Olea</i> sp.	Olive	6
5	<i>Prunus</i> sp.	Apple, Plum	12
6	<i>Prunus</i> sp.	Apple, Plum	12
7	<i>Prunus</i> sp.	Apple, Plum	12
8	<i>Prunus</i> sp.	Apple, Plum	12
9	<i>Prunus</i> sp.	Apple, Plum	12
10	<i>Prunus</i> sp.	Apple, Plum	12
11	<i>Prunus</i> sp.	Apple, Plum	12
12	<i>Prunus</i> sp.	Apple, Plum	12
13	<i>Prunus</i> sp.	Apple, Plum	12
14	<i>Prunus</i> sp.	Apple, Plum	12
15	<i>Prunus</i> sp.	Apple, Plum	12
16	<i>Prunus</i> sp.	Apple, Plum	12
17	<i>Prunus</i> sp.	Apple, Plum	12
18	<i>Prunus</i> sp.	Apple, Plum	12
19	<i>Prunus</i> sp.	Apple, Plum	10
20	<i>Prunus</i> sp.	Apple, Plum	10
21	<i>Prunus</i> sp.	Apple, Plum	10
22	<i>Prunus</i> sp.	Apple, Plum	10
23	<i>Quercus agrifolia</i>	Coastal Live Oak	12
24	<i>Umbellularia californica</i>	Bay Tree	30
25	<i>Umbellularia californica</i>	Bay Tree	30

Note: DBH=diameter at breast height.

**CMFC Phase I Project Trees and Shrubs to be Removed During Construction**

<b>Tree Location on Map</b>	<b>Tree Scientific Name</b>	<b>Tree Common Name</b>	<b>DBH</b>
26	<i>Umbellularia. californica</i>	Bay Tree	30
27	<i>Umbellularia. californica</i>	Bay Tree	24
28	<i>Umbellularia. californica</i>	Bay Tree	24
29	<i>Umbellularia. californica</i>	Bay Tree	24
30	<i>Umbellularia. californica</i>	Bay Tree	24
32	<i>Prunus sp.</i>	Apple, Plum	8
33	<i>Prunus sp.</i>	Apple, Plum	12
34	<i>Quereus. agrifolia</i>	Coastal Live Oak	18
35	<i>Quereus. agrifolia</i>	Coastal Live Oak	18
36	<i>Quereus. agrifolia</i>	Coastal Live Oak	4
37	<i>Quereus. agrifolia</i>	Coastal Live Oak	4
38	<i>Quereus. agrifolia</i>	Coastal Live Oak	16
39	<i>Quereus. agrifolia</i>	Coastal Live Oak	4
40	<i>Quereus. agrifolia</i>	Coastal Live Oak	4
41	<i>Quereus. agrifolia</i>	Coastal Live Oak	4
42	<i>Quereus. agrifolia</i>	Coastal Live Oak	4
43	<i>Quereus. agrifolia</i>	Coastal Live Oak	4
44	<i>Quereus. agrifolia</i>	Coastal Live Oak	4
45	<i>Quereus. agrifolia</i>	Coastal Live Oak	4
46	<i>Quereus. agrifolia</i>	Coastal Live Oak	8
47	<i>Quereus. agrifolia</i>	Coastal Live Oak	8
48	<i>Quereus. agrifolia</i>	Coastal Live Oak	8

<i>Acacia sp.</i>	3
<i>Olea sp.</i>	1
<i>Prunus sp.</i>	20
<i>Q. agrifolia</i>	16
<i>U. californica</i>	7
<i>B. pilularis</i>	1

**Total** **48**

## Appendix E: Summary of Marin County and City of Larkspur Visual Resource Plans and Policies

The following table provides a summary of scenic and visual resource plans and policies found in the general plans for the City of Larkspur and Marin County, intended to preserve, enhance, restore and respect scenic vistas and visually important landscapes in Larkspur and Marin County.

### Applicable Scenic/Visual Resources Plans and Policies

<b><i>Marin Countywide Plan Update Draft</i></b>
<b>Design–Policy DES4.1:</b> Preserve Visual Quality. Protect scenic quality and views of the natural environment—including ridgelines and upland greenbelts, hillsides, water, and trees—from adverse impacts related to development.
<b>Design–Implementation Program DES-4.b:</b> Minimize Visual Impacts of Public Facilities. Amend applicable codes and procedures the Development Code to require appropriate placement, design, setbacks, and native landscaping of public facilities (including soundwalls, medians, retaining walls, power lines, and water tanks) to reduce visual impacts, and encourage local agencies to adopt similar standards.
<b>Design–Implementation Program DES-4.c:</b> Regulate Mass and Scale. Ensure that the mass and scale of new structures respects environmental site constraints and character of the surrounding neighborhood (see Program DES-3.b), are compatible with ridge protection policies (see Program DES-4.e), and avoid tree-cutting (especially on wooded hillsides) and grading wherever possible.
<b>Design–Implementation Program DES-4.f:</b> Participate in the California Scenic Highway Program. Participate in the Scenic Highway Program in order to preserve and enhance Marin’s scenic highway corridors
<b>Design–Goal DES5:</b> Attractive and Functional Streets and Parking Areas. Design automobile use areas to fit the character of the community and comfortably accommodate travel by pedestrians and bicyclists, while still meeting health, safety, and emergency access needs.
<b><i>City of Larkspur General Plan</i></b>
<b>Land Use–Policy P:</b> Ensure that new development in Greenbrae East retains a sense of the area's physical setting by providing vistas of the ridgelines and access to the adjacent creek, marshlands, and the Bay beyond.
<b>Land Use– Goal 13:</b> On those lots where development or redevelopment is expected to occur, integrate natural features into new development, to the greatest extent reasonably feasible.
<b>Community Character–Policy B:</b> Preserve the desirable features of the built environment as well as the remaining natural environment—trees, marshes, creeks, hillsides—as components of Larkspur’s community character and identity.
<b>Community Character–Policy D:</b> Visually integrate the various sections of the community.
<b>Circulation–Policy AG:</b> Ensure that transportation facilities do not impinge upon irreplaceable resources (such as Corte Madera Creek, the Bay and its shoreline, important open space lands, and recreational facilities).
<b>Environmental Resources–Policy F:</b> Increase visual access to the Bay and Corte Madera Creek.

Source: *Highway 101/580 Greenbrae / Twin Cities Corridor Improvements—Visual / Aesthetic Technical Memorandum*. August 2007.



TAM

**Central Marin Ferry Connection**  
**Marin County, California**  
**Phase 1**

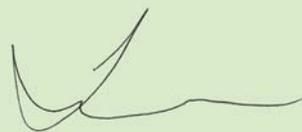
**HISTORICAL RESOURCES EVALUATION REPORT**

**Version 4, April 2010**

TAM Project No.: C-FY05/06-007

Jacobs Carter Burgess Project No.: CB701729

SUBMITTED BY:



Toni Webb, JRP Historical Consulting, LLC

April 21, 2010

Date

REVIEWED BY:



Lauran Abom, Jacobs Carter Burgess

April 26, 2010

Date

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April 26, 2010

Date



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**ATTACHMENTS**

- Appendix A Maps
- Appendix B DPR 523 Form



## 1 Summary of Findings

JRP Historical Consulting, LLC (JRP) prepared this Historical Resources Evaluation Report (HRER) to evaluate historic buildings, structures, and objects within the Study Area for the proposed Central Marin Ferry Connection Project, Phase 1, Marin County, California (CMFC Project). The purpose of this document is to comply with the California Environmental Quality Act (CEQA) as it pertains to historical resources. This study was conducted in accordance with Section 15064.5(a and b) of the CEQA Guidelines using the criteria outlined in Section 5024.1 of the California Public Resources Code.

This project proposes to construct a new multi-use pathway following Marin County's north-south greenway. The project location and vicinity are shown in Map 1 and the architectural study area is shown in Map 2. These figures appear in Appendix A. The architectural study area contains one historic-era resource, a 0.5-mile segment of the Northwestern Pacific Railroad and its associated trestle and bascule bridge, which were constructed in the in the early twentieth century.

This report concludes that neither the segment of the Northwestern Pacific Railroad, nor its associated trestle and bridge, appear to meet the criteria for listing on the California Register of Historical Resources (CRHR), nor do they constitute a historical resource for the purposes of the California Environmental Quality Act (CEQA).

## 2 Project Description

The Transportation Authority of Marin (TAM) is proposing to construct a new multi-use pathway intended to further promote non-motorized commute alternatives and enhanced recreational travel within the City of Larkspur in Marin County, California. TAM plans to construct the project in two phases. The pathway would generally follow the County's north-south greenway. Phase I of the proposed project, and the scope of this proposed project, would construct a multi-use pathway adjacent to the east side of U.S. Highway 101 from post mile (PM) 14.7 to PM 15.3 that would include an overcrossing above East Sir Francis Drake Boulevard (SFDB) and connect to the existing multi-use pathway located south of SFDB. Phase I would connect to the southern limit of the Cal Park Hill Tunnel Rehabilitation and Path Project to the north, which is currently under construction. Phase II of the proposed project would extend the Phase I multi-use pathway to the south along the east side of U.S. Highway 101 to Wornum Drive and include an overcrossing above Corte Madera Creek and provide access to the Greenbrae Boardwalk. Once completed, the entire Central Marin Ferry Connection (CMFC) project (i.e., Phases I and II) would provide a continuous multi-use pathway from the Cal Park Hill Tunnel and the future Sonoma Marin Area Rail Transit (SMART) Larkspur Station in the north to Wornum Drive in the south.

Phases I and II of the proposed project have independent utility with respect to each other because each would serve their own purpose and would occur regardless of whether the other phase was to occur. The independent utility analysis does not include the Cal Park Hill Tunnel Rehabilitation and Path Project because it is under construction and constitutes an existing condition.

### 2.1 Project History

The County of Marin identified the need to improve the U.S. Highway 101 corridor from the Tamalpais Drive interchange in the Town of Corte Madera to the SFDB interchange in the City of Larkspur (i.e., Greenbrae Corridor) as early as 1999. The need for improving the corridor was recognized as a high priority at the regional planning level and in 2004, Regional Measure 2 was approved, which provided funds to further develop the improvements. In coordination with Caltrans, TAM engaged the public in a series of public workshops to identify public concerns and develop several alternatives using context sensitive design principles to integrate stakeholder input into the project development process. This included considering the physical setting as well as addressing community values as part of the public outreach process. In addition to identifying motorized transportation alternatives throughout the corridor, non-motorized commute alternatives for the U.S. Highway 101/SFDB interchange were developed, which included the improvements described in this proposed CMFC Phase I project. The U.S. Highway 101/SFDB interchange serves a critical role in the Marin County multimodal transportation network because it serves freeway and local traffic, access to cities east and west of U.S. Highway 101, the Larkspur Ferry Terminal, the Marin Airporter, Larkspur Landing, and business and commercial developments along Corte Madera Creek.

## 2.2 Project Need

Currently, north/south non-motorized travel is difficult at the U.S. Highway 101/SFDB interchange because SFDB serves as a physical barrier between the Cal Park Hill Tunnel Rehabilitation and Path Project, located north of SFDB, and the multi-use pathway, located south of SFDB. Access to the multi-use pathway from the north side of SFDB requires travelers to cross the roadway at Larkspur Landing Circle, which is located approximately 800 feet to the east. Also, Corte Madera Creek and the adjacent salt marsh provide a unique habitat viewing area opportunity; however, access to points from which to view the creek and salt marsh are limited.

## 2.3 Project Purpose

The purpose of this proposed project would be to improve public access and connectivity for non-motorized access by constructing a new SFDB overcrossing east of the U.S. Highway 101/SFDB interchange. This proposed project would also improve the opportunities to observe the Corte Madera Creek salt marsh area, by constructing an elevated path along the north bank of Corte Madera Creek. This proposed project is of importance to central Marin County because it would provide safe, direct, and convenient non-motorized access between local transit facilities (i.e., future SMART station) and the existing Larkspur Ferry Terminal, as well as access to schools, business centers, and residential communities.

## 2.4 Phase I Description

The proposed project would include the following construction activities for Phase I:

- Conduct a geotechnical survey
- Construct a new multi-use pathway that extends from the existing Cal Park Hill Tunnel Rehabilitation and Path Project to East SFDB
- Construct a new multi-use pathway overcrossing structure and approach ramps at East SFDB
- Construct a new access ramp from the sidewalk on the north side of East SFDB to the new overcrossing
- Construct an approach ramp for the multi-use path south of East SFDB with viewing areas above the salt marsh area and Corte Madera Creek
- Construct a new access ramp that conforms to the existing multi-use paths and repave the existing multi-use pathway south of East SFDB from the Highway 101 northbound off ramp structure to the Larkspur Ferry Terminal entrance
- Construct retaining walls at various locations along the multi-use path
- Construct new sidewalks, curbs, and gutters along East SFDB
- Install signage, striping, lighting, screening, handrails, fencing, landscaping, truncated domes and/or bollards
- Construct stormwater swales and detention basins
- Remove or retrofit all or a portion of the existing railroad trestle
- Relocate and protect existing utilities
- Construct temporary access areas within the salt marsh and Corte Madera Creek

### 3 Research and Field Methods

JRP developed the architectural study area for the proposed project in June 2008 and revised the architectural study area in October 2009 to account for changes in the project design. Consistent with general cultural resource practices, the architectural study area encompasses areas that may have potential to be affected directly or indirectly by construction; i.e., those areas within which the project could cause a change in character or use of historic properties. While the Secretary of Interior sets the standard guidelines for review of potential National Register of Historic Places-eligible buildings, structures, or features that are 50 years of age or older, this age limit has been shortened to include resources constructed in 1963 or before to account for lead-time between preparation of environmental documentation and potential construction in the selected corridor. JRP therefore treated any property constructed in or before 1963 as meeting the 50-year age requirement for eligibility California Register of Historical Resources (CRHR).

Once the architectural study area was defined, JRP staff conducted a reconnaissance survey of the area to identify all buildings, structures, and objects found within the study area. This field reconnaissance helped to determine which resources appeared to be more than 45 years of age and would, therefore, be studied for this project. JRP conducted additional background research through review of First American CoreLogic real estate database, historic and current United States Geological Survey (USGS) topographic maps, and other documents to confirm dates of construction.

Far Western Anthropological Research Group (Far Western) conducted a records search for this project at the Northwest Information Center (Sonoma State University) on October 4, 2006. The results of the records search were shared with JRP as they pertained to historic architectural resources. That search did not identify any known historic resources within the project's architectural study area. Only one historic-era property, a segment of the Northwestern Pacific Railroad, was identified through field investigations.

JRP conducted fieldwork in June 2008 and October 2009. The historic context was based on the previous report entitled "Historical Resources Inventory and Evaluation Report: Northwestern Pacific Railroad Segment, California Park Hill Railroad Tunnel Project" prepared by JRP in 2003. Additional research was conducted at Shields Library (University of California, Davis), California State Archives and Library, and the California State Railroad Museum Library. JRP also reviewed the California Historical Resources Information System (CHRIS), California Historical Landmarks and Points of Historical Interest publications and updates, and National Register of Historic Places (NRHP), CRHR, and local register listings.

Maps depicting the project's location and vicinity (Map 1), as well as project's architectural study area (Map 2), are found in Appendix A. A formal evaluation of the one inventoried resource, completed on California Department of Parks and Recreation Form 523 (DPR 523), is found in Appendix B.

## 4 Historical Overview

This report addresses a short, 0.5-mile segment of the Northwestern Pacific Railroad's (NWP) main line, which includes a trestle over Corte Madera Creek. Together, these resources represent two small components of the lengthy NWP network that operated throughout the north coast counties of California. The NWP formed through a partnership between Southern Pacific Railway (SP) and the Atcheson, Topeka & Santa Fe Railroad (Santa Fe) for the purposes of providing rail service between the San Francisco Bay region and the Northern California coast region. In 1907, the incorporation of NWP consolidated six railroads, but through previous mergers and consolidations, 42 north coast railroad companies contributed to the development of the NWP.

The history of the NWP outlines the growth of a railroad transportation network that provided passenger and freight services throughout the North Bay Area and northern California counties of Marin, Sonoma, Napa, Mendocino and Humboldt, and linked the northern California coast counties with the San Francisco urban center. This report focuses on the development of early freight and passenger rail service in Marin County, the growth of interurban passenger service to North Bay Area counties, and the significance of the connecting railroad segment in the development of the transportation network.

### 4.1 Northwestern Pacific Railroad Development in the Southern Division, 1860-1900

The rail system in Marin County dates from the 1860s, when local entrepreneurs sought to develop a transportation network for both freight and passenger travel between the urban center of San Francisco and the increasingly populous Marin and Sonoma counties. By 1860, Sonoma and Marin counties had a combined population of over 15,000. In the late 1850s, North Bay communities began looking for more efficient, cost-effective ways to transport local goods to the San Francisco market. While farming occupied much of the developed land in the North Bay, farms tended to be near population centers such as San Rafael, Petaluma, and Santa Rosa. Wagons transported local products to the central towns, then to river outlets, which connected North Bay communities to San Francisco by steamboat ferry service. In April 1862, the California legislature granted Charles Minturn, who ran several steam-powered ferryboat enterprises around the San Francisco Bay, the right to build the Petaluma & Haystack Railroad. This first North Bay steam-powered railroad ran the two and a half miles between Petaluma and Haystack Landing on Petaluma River, and connected with Minturn's steam powered ferryboats. Steamboats included the *Clinton* and *Contra Costa*, small, single-ended boats that could navigate the Petaluma River. Local goods still reached Petaluma by wagon road and were loaded onto railroad cars for transport to the river landing. There they were put onto the ferries, which were then sent to San Francisco shipping companies or local markets.<sup>1</sup>

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<sup>1</sup> "Historical Census Population of Places, Towns, and Cities in California, 1850-1990," accessed online at [www.dof.ca.gov/HTML/DEMOGRAP/CALHIST2a.XLS](http://www.dof.ca.gov/HTML/DEMOGRAP/CALHIST2a.XLS) on December 17, 2003, "Welcome to California" website sponsored by the State of California, 2003; John Haskell Kembel, *San Francisco Bay: A Pictorial Maritime History* (New

Over the next twenty years, North Bay communities sought ways to improve local transportation. Citizens' groups funded construction of rail lines reaching further inland, attempting to reduce wagon transportation and use the more efficient rail car. Railroad construction was an expensive and largely financially unsuccessful process. Numerous locally-funded railroad companies organized, merged, and consolidated. In 1868, the Sonoma County Railroad Company incorporated for the purposes of building a line from Petaluma to Healdsburg via Santa Rosa. That same year Sonoma County Railroad Company merged with San Francisco & Humboldt Bay Railroad Company, which was organized in 1865 to build a railroad from Petaluma to Cloverdale. The company ran out of money after laying ten miles of track.<sup>2</sup> While the companies were not financially successful, they did manage to build many miles of track, adding to the region's expanding steam railroad network.

In 1869, Peter Donahue, developer of the San Francisco & San Jose Railroad (the line now operated as Caltrain) and owner of several small railroad companies in California, organized the San Francisco & North Pacific Rail Road Company and joined with San Francisco & Humboldt Bay Railroad to complete a standard gauge line to Cloverdale.<sup>3</sup> In 1877, Donahue consolidated the San Francisco & North Pacific Rail Road, the Sonoma & Marin Railroad and the Fulton & Guerneville Railroad, all railroads in which Donahue held controlling interest, into the San Francisco & North Pacific Railroad (SF&NPRR). Since the days of the Petaluma & Haystack Railroad, Petaluma had been firmly established as the southern terminus for the expanding rail transportation in the North Bay counties because of its connection with the steamboats operating on Petaluma River.

As the Petaluma River became increasingly difficult for boats to negotiate Donahue sought a more direct path to connect his railroad and ferry services. By 1879, Donahue extended the SF&NPRR south to San Rafael, where the standard gauge track of the SF&NPRR connected with the narrow gauge San Rafael & San Quentin (SR&SQ), a shortline connecting San Rafael to Point San Quentin, where there had been steamboat ferry service into San Francisco since 1869. The transfer between the two lines required passengers and freight to off-load from one line, and be transported by stage or wagon the half-mile to the other line. This cumbersome arrangement proved unsatisfactory, especially to Donahue who wanted his rail line to connect to his steamboat ferry line. In 1882, Donahue organized the San Francisco & San Rafael Rail Road to build a standard gauge line between Point Tiburon and San Rafael, after which the new railroad would merge with the

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York: Bonanza Books, 1957), 57; Fred A. Stindt and Guy L. Dunscomb, *The Northwestern Pacific Railroad, Redwood Empire Route* (Redwood City, CA: Fred A. Stindt, publisher, 1964), 10.

<sup>2</sup> Stindt and Dunscomb, *The Northwestern Pacific Railroad*, 15.

<sup>3</sup> Peter Donahue came to San Francisco in 1849 and after a short stint in the gold fields, returned to San Francisco and opened a blacksmith shop, which was the beginning of the Union Iron Works, the first foundry the state. Locomotives and cars for his railroad lines were built in that foundry. Donahue and his brothers were also the main force behind organizing the San Francisco Gas Company, the first gas utility company in the state - the predecessor of Pacific Gas & Electric Company. For a short biography of Peter Donahue see: Charles M. Coleman, *PG&E of California: The Centennial Story of Pacific Gas and Electric Company, 1852-1952*, (New York: McGraw-Hill Book Company, Inc., 1952) and Richard H. Dillon, *Iron Men: Peter, James, and Michael Donahue: California's Industrial Pioneers*, (Richmond, CA: Candela Press, 1984).

SF&NPRR. Donahue planned a new ferry terminal for Point Tiburon, which would become the new southern terminus for the SF&NPRR. Although the distance between San Rafael and Tiburon required only nine miles of track, the hilly terrain required construction of several trestles and three tunnels, including the first tunnel constructed on the site of the present California Park Tunnel. The San Francisco & San Rafael Rail Road Company completed the nine-mile line between San Rafael and Tiburon on April 28, 1884, at a cost of \$677,779.50. Tiburon became the permanent southern terminus of SF&NPRR and the point where passengers and cargo were transferred to ferries bound for San Francisco. In 1884, Donahue and the SF&NPRR controlled over 100 miles of railroad line through Marin and Sonoma counties, and ran eight steam locomotives, ten passenger cars, three baggage, mail and express cars, and 222 freight cars.<sup>4</sup>

Donahue died on November 26, 1885, passing the control of the SF&NPRR to his son, J.M. Donahue, who continued expanding passenger and freight services. The railroad was sold at public auction upon J.M. Donahue's death in 1889 to A.W. Foster, Sydney V. Smith and Andrew Markham, who consolidated the SF&NPRR, Cloverdale & Ukiah Rail Road Company, San Francisco & San Rafael Rail Road, Marin & Napa Rail Road, Sonoma & Santa Rosa Rail Road, and Sonoma Valley Railroad into the San Francisco & North Pacific Railway Company. In 1898, the San Francisco & North Pacific Railway Company entered into a twenty-year lease agreement with the California Northwestern Railway Company, a newly incorporated entity whose backers were interested in connecting the coastal timber regions of Humboldt County and Mendocino with the San Francisco Bay. The growing wood products industry of the north coast counties required a more efficient and cost effective method of moving timber and timber products than transport by ship. By 1902, the California Northwestern Railway Company laid its tracks as far north as Willits in Mendocino County.

The leaders of the SP, who up until this time considered north coast railroad development unimportant, began to take an interest. Already well established in the Central Valley and the East Bay area with its western terminus in Oakland, the SP now considered north coast timber as a potentially lucrative addition to their freight business. Connecting the Eureka and Arcata area with San Francisco Bay became the objective. In 1902, SP took a controlling interest in the California Northwestern Railway Company, and in 1903, incorporated the San Francisco & Eureka Railway Company with the goal of building 200 miles of track between Willits and Eureka. At the same time, the Santa Fe became interested in capturing the north coast timber freight market and organized the San Francisco & Northwestern Railway in May of 1903 to build a competing line between Eureka and San Francisco.<sup>5</sup>

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<sup>4</sup> Stanley Borden, "History of the Northwestern Pacific Railroad," *Western Railroader* 12, 7 (May 1949), 3-5; Kemble, *San Francisco Bay*, 46.

<sup>5</sup> Stindt and Dunscomb, *The Northwestern Pacific Railroad*, 15,48; Gilbert H. Kneiss, *Redwood Railways: A History of the Northwestern Pacific Railroad and Predecessor Line* (Berkeley: Howell-North Press, 1956), 130-132.

#### 4.2 Northwestern Pacific Railroad Development, Northern Division, Pre-1905

Railroads were first constructed around the Humboldt Bay region after 1875. Logging companies built short-line railroads to bring the lumber from the area's vast redwood forests to the mills centered in Eureka and Arcata. Local entrepreneur and mill owner John Vance of Eureka opened the area's first railroad in 1875 along the Mad River Slough to Essex, north of Arcata. A private enterprise, the Mad River Railroad was purchased by Vance's nephews, Edgar and John Vance in 1891. In 1892, the Humboldt Bay & Trinidad Lumber & Logging Company purchased the line and incorporated it as the Eureka & Klamath River Railroad (E&KRR) in 1896. The E&KRR soon began work on a line connecting Eureka and Arcata.<sup>6</sup>

California & Northern Railroad (C&N), incorporated in 1901, took over the rail line construction of the Eureka to Arcata segment from the E&KRR, completing it on October 30, 1901. This line left the northern outskirts of Eureka and traveled east along the southeastern margin of Humboldt Bay, turning generally northeast around present day Brainard to Bracut. At Bracut, the line traveled directly north into Arcata, bypassing the small communities of Sunny Brae, Bayside, and Indianola, located on Old Arcata Road. Because the C&N did not have the money to begin operations, the Eel River & Eureka Railroad, a small line connecting the bay with the mills at Scotia, leased the C&N's line and in December 1901 and began passenger and freight service between Eureka and Arcata. The Santa Fe took over most of these small lines and by 1905, it owned over fifty miles of track in Northern California.<sup>7</sup>

#### 4.3 The Incorporation of the Northwestern Pacific Railroad

By 1905, the SP and the Santa Fe realized the cost of constructing and operating competing lines into the Humboldt Bay region would be too high to make a profit. Rather than compete, the two companies consolidated. The result was the NWP, incorporated January 8, 1907, which consolidated the San Francisco & North Pacific Railway, California Northwestern Railway, the North Shore Railroad, San Francisco & Northwestern Railway, the Eureka & Klamath Railroad, Fort Bragg & Southeastern Railroad, and later, the San Francisco & Eureka Railway. The SP and Santa Fe engineers settled on a route through the main Eel River canyon. Because of the difficult terrain, construction proceeded slowly approximately twenty-five miles per year, and included construction of twenty-eight new tunnels. The NWP finally completed the line connecting Willits and Eureka in 1914.

Upon incorporation in 1907, the NWP set up in three divisions of steam-powered operations. The Northern Division included the standard gauge area near Eureka. The standard gauge from Tiburon to Willits and associated branches became the Western Division. The narrow gauge lines of the

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<sup>6</sup> Stindt and Dunscomb, *The Northwestern Pacific Railroad*, 38.

<sup>7</sup> "History of the Northwestern Pacific Railroad," 8-9.

former North Pacific Coast/North Shore Railroad were named the Shore Division. Within a few years, the company combined Western Division and Shore Division into the Southern Division.<sup>8</sup>

#### 4.4 The Development of Electric Interurban Transportation

The Shore Division's narrow gauge lines built by the North Pacific Coast Railroad (NPCR) formed the basis for early interurban travel in southern Marin County. The NPCR incorporated in 1871 to build a narrow gauge track running steam trains north from the Sausalito Ferry Terminal to San Anselmo, a line which over the next thirty years extended north to Cazadero through consolidation of numerous companies incorporated to build short segments. NPCR's history was one of financial instability and frequent reorganization under a long line of changing ownership. Originally constructed to reach the timber communities of Marin and Sonoma counties, its tracks wound through the state's coastal redwood forests. The economic decline in the 1890s resulted in a reduction of lumber and agricultural freight shipments. To generate revenues, NPCR joined with Marin County communities in an extensive marketing campaign to promote Marin County as a desirable alternative to San Francisco living. The scheme was not considered a success. Even though ridership increased, population statistics showed negligible increases for Marin County between the 1890 and 1900 census years.<sup>9</sup> Increased ticket sales reflected another marketing strategy promoted by the railroad during the early years of 1900s; NPCR marketed the "Redwood Empire" as a recreation destination for San Franciscans. Although freight revenues declined, because of increased passenger ridership between 1892 and 1901, the NPCR showed a profit every year except 1896 and 1898.<sup>10</sup> In 1894, NPCR added a double-end ferry, the Sausalito, to augment their ferry service. The Sausalito was equipped to carry narrow gauge freight cars on its lower deck.

In 1902, a group of investors organized by John Martin and Eugene de Sabla, Jr. recognized the potential of the southern Marin County portion of the NPCR as a good choice for an electrified commuter railroad and purchased the system.<sup>11</sup> Martin changed the name of North Pacific Coast Railroad to North Shore Railroad (NSRR) and began converting its narrow gauge track to standard gauge track, incorporating an additional "third rail" for electrification. The "third rail" method was the most efficient for transmission of the high-voltage electricity required to power the trains. The "third rail" was mounted on wooden insulators and carried the electric current. A rod extended from under the rail car and connected to the power supply. Although efficient, the system posed considerable danger from electrocution and required insulated covers inside train stations and anywhere the rails might contact humans. The NSRR became the first, third-rail electric railway in

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<sup>8</sup> Fred A. Stindt, "Northwestern Pacific Railroad, Narrow Gauge," *Western Railroad* 31,2 (December 1968): 3.

<sup>9</sup> "Historical Census Population of Places, Towns, and Cities in California, 1850-1990."

<sup>10</sup> Stindt and Dunscomb, *The Northwestern Pacific Railroad*, 31.

<sup>11</sup> Development of electrified urban streetcars dated to the 1860s but interurban transportation began in 1893 with a line between Portland, Oregon and Oregon City. In California, John Martin and Eugene de Sabla, Jr. pioneered the construction of high voltage transmission lines over long distances and were among the founders of the Pacific Gas & Electric Company. See: Coleman, *P.G.&E. of California*, 128-137.

California when the electric interurban service began in August 1903. Commuter trains ran between the passenger ferry terminal in Sausalito to Mill Valley along the path of the old North Pacific Coast Railroad. The first trip from Sausalito to San Rafael via electric train took place on September 19, 1903. In 1904, SP purchased the NSRR, which it consolidated into NWP in 1907.

From 1908 to 1914, the NWP completed numerous construction projects to modernize the line's southern end. The most significant was the 1.4-mile section of track constructed between Baltimore Park (now part of Larkspur) and Detour (historic community just south of Corte Madera Creek on the NWP line) in 1909. This new section shifted the southern terminal from Point Tiburon to Sausalito for all through steam passenger service. Tiburon continued to be used as the freight loading station. The new line for passenger service originated in Sausalito, followed a northwest track to Baltimore Park, turned northeast to Detour and connected to the old main line just south of Tunnel Number 3 (California Hill Park Tunnel, which today is most commonly referred to as Cal Park Tunnel). Over the next several years NWP undertook numerous projects to update the line and improve operations, hoping to increase profits. One such project laid a second track between the Greenbrae and San Rafael stations, a section of track that included Tunnel Number 3 and the 0.5-mile segment (including the trestle over Corte Madera Creek) documented as part of this project.<sup>12</sup>

At this time, the electric interurban route ran northwest from Sausalito to San Anselmo, then east to San Rafael, bypassing Tunnel Number 3. After the completion of the Baltimore Park-Detour cut off in 1909, electric train service continued to run over the Sausalito-San Anselmo-San Rafael route until 1924. During the early 1920s, track modifications on the Detour-San Rafael segment included the installation of a double track drawbridge over Corte Madera Creek at Greenbrae (located outside of the architectural study area), a double track trestle over Corte Madera Creek, and double tracking Tunnel Number 3, all with the necessary third rail to power electric trains. After completion of double tracking in 1924, electric interurban passenger service was routed over the Baltimore Park-Detour cutoff and through Tunnel Number 3 to San Rafael.<sup>13</sup>

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<sup>12</sup> Stindt and Dunscomb, *The Northwestern Pacific Railroad*, 53; Public Utilities Commission, "Profile and Alignment Mapping of the Northwestern Pacific Railway, Tiburon to Sonoma County Line, Marin County, California," October 3, 1912, Public Utilities Commission Records, California State Archives, Sacramento, California.

<sup>13</sup> Northwestern Pacific Railroad Company, "Authority for Expenditure/Executive Authority Records, Number 1484 and 1484 supplement," Northwestern Pacific Railroad Collection, California State Railroad Museum Library, Sacramento, California; "History of the Northwestern Pacific Railroad," 6-7; Paul Trimble, *Interurban Railways of the Bay Area* (Fresno: Valley Publishers, 1977), 67-76.

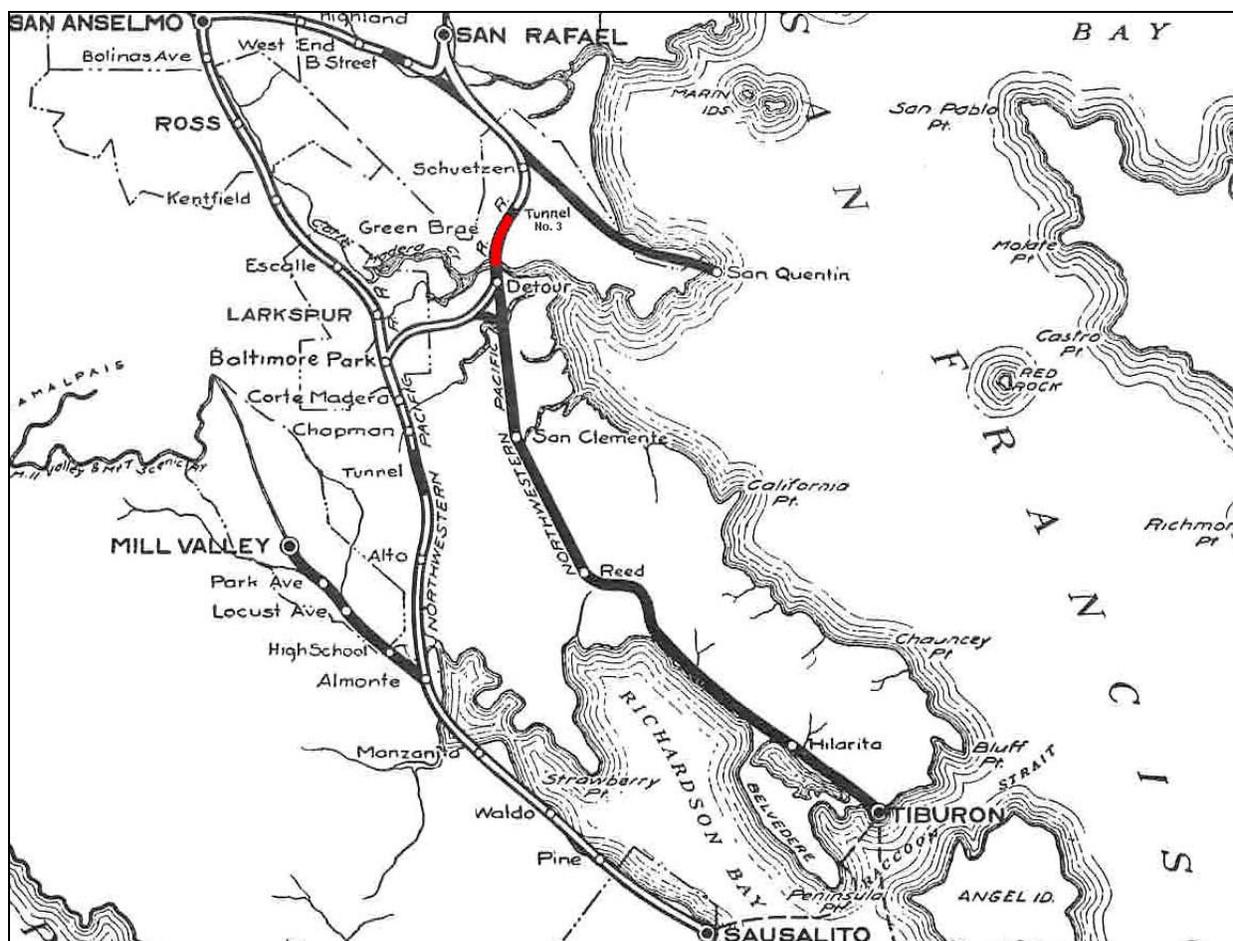


Figure 1. Map of the Southern Division Interurban Northwestern Pacific Railroad, showing 0.5-mile segment studied for this project (Map Reference No. 1) in red.

The introduction of electric interurban transportation replaced narrow gauge commuter passenger service throughout southern Marin County, although steam narrow gauge rail service (both freight and passenger) continued running the length of the line for several years. The 1906 earthquake and fire produced a short-lived expansion of the north coast timber industry, which was still serviced by old, narrow gauge lines; but as rebuilding wound down, freight revenues dropped off, and once again the line could not cover expenses. For efficiency, NWP converted more of its track to standard gauge. In 1910, NWP ended the narrow gauge freight car ferry transfer between Sausalito and San Francisco by removing the narrow gauge rail from their freight car transporting ferries.<sup>14</sup>

Narrow gauge steam passenger service experienced some revenue increases in the years after NWP consolidation. NWP continued the NPCR's marketing strategy in promoting the Redwood Coast as a resort destination to urban San Franciscans. NWP released an annual publication, *Vacation*, which advertised the many resorts and attractions to be found along the NWP Redwood Line. NWP marketed the "Triangle Trip," a course originating at the ferry terminal in Sausalito, traveling

<sup>14</sup> "Northwestern Pacific Railroad: Narrow Gauge," 4-5.

northwest to Monte Rio, east along the Russian River to Fulton, then returning to Sausalito by way of Santa Rosa, Petaluma, and San Rafael, as one of the “finest sight-seeing Trips in the World.”<sup>15</sup> Several additional trains were added between 1910 and 1914 during the summer months to meet passenger increases. However, increased revenues did not balance costs on the aging line. By the mid-1920s the communities served by the narrow gauge steam line regularly complained about the old equipment and unsafe conditions. In 1927, the California State Public Utilities Commission (Commission) issued a report that outlined the bleak prospects of the narrow gauge line. The Commission recommended the line be abandoned and services replaced by a motor bus with space for 15 passengers, 1,500 pounds of freight, express and mail. By 1929 all remaining narrow gauge tracks running stream passenger trains had been abandoned.<sup>16</sup>

#### 4.5 The Decline of the Northwestern Pacific Railroad

During the 1920s, increased use of automobile contributed to the drop in passenger patronage. Heavy annual losses caused Santa Fe to sell out to SP; in 1929, SP purchased Santa Fe’s interest in the NWP for \$4.6 million, and NWP became solely a subsidiary of the SP.<sup>17</sup> The completion of the Golden Gate Bridge in 1937 provided an automobile connection between San Francisco and Marin County that led to the end of the passenger and freight ferry service and interurban rail transportation to the north bay counties of Marin, Sonoma, and Mendocino. The increasing popularity of automobile ownership, aging rolling stock, and the need for parent company SP to eliminate the money-losing commuter lines led the California Railroad Commission to permit abandonment of the interurban-ferryboat services to southern Marin County in 1941. The last electric interurban train in southern Marin County ran February 28, 1941. That same year, the southern terminal of NWP passenger operations shifted from Sausalito to San Rafael, bypassing the segment north of Corte Madera Creek. In 1972 NWP ended all train service between Sausalito and San Rafael.<sup>18</sup>

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<sup>15</sup> Northwestern Pacific Railroad advertising that appeared in the official time schedule dated August 1, 1912. Reprinted in: Stindt and Dunscomb, *The Northwestern Pacific Railroad*, 52.

<sup>16</sup> “Northwestern Pacific Railroad: Narrow Gauge,” 15. Trimble, *Interurban Railways of the Bay Area*, 5; “Obituaries, The Northwestern Pacific,” *Pacific Traveler*, Railroad Issue, No. 54, October 1971, 8.

<sup>17</sup> Stindt and Dunscomb, *The Northwestern Pacific Railroad*, 48, 54; Kneiss, *Redwood Railway*, 134; Northwestern Pacific Railroad, *Re-Driving of the Golden Spike: Northwestern Pacific Rail Service Restored After 1964 Flood Damage* (Northwestern Pacific Railroad Company, 1965), n.p.

<sup>18</sup> Paul Trimble, *Interurban Railways of the Bay Area* (Fresno: Valley Publishers, 1977), 67-76. “Obituaries, The Northwestern Pacific,” 8; Stindt and Dunscomb, *The Northwestern Pacific Railroad*, 54-55; Northwestern Pacific Railroad Historical Society, online at <http://www.NWPRRHS.ORG>, accessed on December 16, 2003. Increased popularity of automobiles along with the economic hardships of the Depression contributed to a decline in the use of the NWP line between Willits and Arcata. Both freight and passenger service cut backs dictated branch line and main line closures. Although World War II provided a resurgence for the railroad, especially in freight movement, post-war prosperity resumed more cutbacks for NWP as car and truck travel grew. In May 1942, NWP ended the day passenger service to Eureka, and by 1958 a small train came through the Eel River Canyon only three times a week. That same year, NWP discontinued the train between San Rafael and Willits. By 1970, the midweek run was cancelled, with only a weekend schedule remaining. In 1984, SP sold the trackage from Willits north to Korblex to Eureka Southern Railroad, later named North Coast Railroad. In 1996, the North Coast Railroad and the former south end of the NWP became the Northwestern Pacific Railroad under public ownership.

## 5 Description of Resources

The architectural study area includes one historic-era property, a 0.5-mile discontinuous segment of the Northwestern Pacific Railroad located in Larkspur. This section of abandoned railroad extends from approximately PM 14.7 at Corte Madera Creek northward to approximately PM 15.3, where the Tunnel Number 3 begins. From its northernmost point at the southern end of the Tunnel Number 3, this segment follows a southeasterly path that generally parallels US 101 on the east side until Sir Francis Drake Boulevard, where it then takes to a more southern course to Corte Madera Creek. The segment includes a portion of a wood trestle constructed 1924, which connects to the bascule bridge (located outside of the project study area) over the creek. This railroad segment is no longer in service and vegetation and earth covers the tracks and ballast. The former rail line at this location consists of a single set of at-grade tracks. Rails rest on a mix of pressure-treated and non-pressure treated ties. A large section of the rail alignment (about 780 feet) has been converted to graveled parking lots for nearby businesses and as a result, tracks and ties in this area have been removed and/or buried. Similarly, while only tracks are evident just north of the parking lot, it is possible that ties are buried beneath dirt and vegetation up to the tunnel. The open deck wood trestle carries a single track. This structure was upgraded in the 1970s. Presently, the trestle is approximately 408 feet long, 15 feet high, and consists of series of five-pile bents with transverse and longitudinal bracing (X-bracing) treated with creosote. The outer two piles in each tower are battered. A pile cap over each section of piles supports the stringer. Heavy beams, placed parallel beneath the steel rails, are bolted to the cap. Posts are bored directly into the ground. The portion of the trestle crossing Sir Francis Drake Boulevard (approximately 164 feet) was removed in 2001. Remnants of the trestle's concrete abutment are still extant within the ballast on the north side of Sir Francis Drake Boulevard.

The bridge (Structure No. 14.61), also constructed in 1924, is a 40-foot, clear span, single-leaf Scherzer-type bascule bridge set two concrete piers. Overall length of the steel rolling lift deck girder bridge is 67'-5". The bridge includes operation platforms with pipe handrails on the east and west side (north end) of bridge.

## 6 Findings

### 6.1 Evaluation Criteria

JRP used the CRHR and NRHP criteria to evaluate the historical significance of the 0.5-mile segment of the Northwestern Pacific Railroad and its associated trestle. The criteria for listing properties in the CRHR are in Section 15064.5(a)(2)-(3) of the CEQA Guidelines, which provides the criteria from Section 20524.1 of the California Public Resources Code. The CRHR is in the California Code of Regulations Title 14, Chapter 11.5. According to this code, properties eligible for listing in the NRHP are automatically eligible for listing in the CRHR. The CRHR criteria are largely based on the NRHP, which are codified in 36 CFR Part 60 and explained in guidelines published by the Keeper of the National Register.<sup>19</sup>

Eligibility for listing in either the NRHP or CRHR rests on twin factors of significance and integrity. A property must have both significance and integrity to be considered eligible. Loss of integrity, if sufficiently great, will overwhelm the historical significance a property may possess and render it ineligible. Likewise, a property can have complete integrity, but if it lacks significance, it must also be considered ineligible.

Historic significance is judged by applying the NRHP and CRHR criteria. The NRHP criteria are identified as Criteria A through D, the CRHR as Criteria 1 through 4. The NRHP guidelines states that a historic resource's "quality of significance in American history, architecture, archeology, engineering and culture" be determined by meeting at least one of the four main criteria, as described below. Properties may be significant at the local, state, or national level:

Criterion A: association with events or trends significant in the broad patterns of our history

Criterion B: association with the lives of significant individuals

Criterion C: a property that embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, or that possesses high artistic values

Criterion D: has yielded, or is likely to yield information important to history or prehistory

In general, Criterion D is used to evaluate historic sites and archaeological resources. Although buildings and structures can occasionally be recognized for the important information they might yield regarding historic construction or technologies, the buildings within the study area for this project are of building types that are well documented. Thus, the property that is the subject of this report is not a principal source of important information in this regard.

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<sup>19</sup> The most widely accepted guidelines are contained in the U.S. Department of Interior, National Park Service, "Guidelines for Applying the National Register Criteria for Evaluation," *National Register Bulletin 15* (Washington D.C.: US Government Printing, 1991, revised 1995 through 2002).

Certain property types are usually excluded from consideration for listing in the NRHP, but can be considered if they meet special requirements in addition to meeting the regular criteria. The following are the seven Criteria Considerations that deal with properties usually excluded from listing in the NRHP:<sup>20</sup>

- Consideration A: Religious Properties
- Consideration B: Moved Properties
- Consideration C: Birthplaces and Graves
- Consideration D: Cemeteries
- Consideration E: Reconstructed Properties
- Consideration F: Commemorative Properties
- Consideration G: Properties that have Achieved Significance within the Past 50 Years

Integrity is determined through applying seven factors to the historical resource. Those factors are location, design, setting, workmanship, materials, feeling, and association. These seven can be roughly grouped into three types of integrity considerations. Location and setting relate to the relationship between the property and its environment. Design, materials, and workmanship, as they apply to historic buildings, relate to construction methods and architectural details. Feeling and association are the least objective of the seven criteria, pertaining to the overall ability of the property to convey a sense of the historical time and place in which it was constructed.

The CRHR criteria closely parallel those of the NRHP. Each resource must be determined to be significant at the local, state, or national level under one of four criteria (paraphrased below) in order to be determined eligible:

- Criterion 1: Resources associated with important events that have made a significant contribution to the broad patterns of our history
- Criterion 2: Resources associated with the lives of persons important to our past
- Criterion 3: Resources that embody the distinctive characteristics of a type, period, or method of construction, or represents the work of a master
- Criterion 4: Resources that have yielded, or may be likely to yield, information important in prehistory or history<sup>21</sup>

As was the case with NRHP Criterion D, the property in the study area does not appear to be significant under CRHR Criterion 4 because it is not a principal source of important information in this regard.

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<sup>20</sup> USDI, National Park Service, "How to Apply the National Register Criteria for Evaluation," *National Register Bulletin 15*, 25, 41-43; USDI, National Park Service, "Guidelines for Evaluating and Nominating Properties that have Achieved Significance within the Last Fifty Years," *National Register Bulletin No. 22* (Washington, D.C.: Government Printing Office, 1979, revised 1990 and 1996).

<sup>21</sup> California Public Resources Code, Sections 4850 through 4858; California Office of Historic Preservation, "Instructions for Nominating Historical Resources to the California Register of Historical Resources," August 1997.

The CRHR definition of integrity and its special considerations for certain properties are slightly different than those for the NRHP. Integrity is defined as “the authenticity of an historical resource’s physical identity evidenced by the survival of characteristics that existed during the resource’s period of significance.” The CRHR further states that eligible resources must “retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance,” and lists the same seven aspects of integrity used for evaluating properties under the NRHP criteria. The CRHR’s special considerations for certain properties types are limited to: 1) moved buildings, structures, or objects; 2) historical resources achieving significance within the past fifty years; and 3) reconstructed buildings.

## 6.2 Evaluation

This 0.5-mile segment (including its associated trestle and bascule bridge) of the Northwestern Pacific Railroad does not appear to meet the criteria for listing in the California Register or National Register, nor does it appear to be a historical resource for the purposes of CEQA. Within the last twenty years at least two sections of this rail line have been subject to National Register evaluations. First, Caltrans evaluated the trestle (which includes the bascule bridge) in 1988 and found that it did not appear to be eligible for listing in the National Register.<sup>22</sup> Five years later, Carey & Co., Inc. prepared a report entitled “Historic Resource Evaluation, Larkspur Rail Trestle, Larkspur, California” for the City of Larkspur. According to that report the trestle as a whole may be historically significant under Criterion 1, for its association with “the development and expansion of the railways in Marin County,” and Criterion 3, for its construction method and use of wood. However, Carey & Co. concluded that “while the Larkspur rail trestle may be considered historically significant as a complete structure, the integrity of the 100-foot section of the structure...has been severely compromised.” Thus that specific segment of the trestle did not meet the CRHR eligibility criteria.<sup>23</sup> That same year, Garcia and Associates (Garcia) completed an evaluation of open deck trestles along a segment of the NWP between Larkspur Landing and Cloverdale for the report “Draft Architectural Resources Inventory and National Register Evaluation for the Sonoma Marin Area Rail Transit (SMART) Project.” In that survey, Garcia found that trestles appeared to be contributors to a larger NWP historic district that extended from Novato to Petaluma, which included culverts, siding, signal lights, trestles and telephone poles. According to the DPR 523 form prepared by Garcia for the trestles, the rail segment appeared eligible to the National Register at the state and local level under Criterion A, within the context of economic development (including transportation & communication). Its period of significance was identified as 1874-1955. The form documented “representative examples of all resources of this type [trestles]” and briefly addressed integrity of those resources overall by noting “with exceptions, the condition of the trestles are quite

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<sup>22</sup> Gregory King, “Evaluation of the Trestle over Sir Francis Drake Boulevard in the City of Larkspur” (Sacramento: California Department of Transportation, 1988).

<sup>23</sup> Carey & Co., Inc. “Historic Resource Evaluation, Larkspur Rail Trestle, Larkspur, CA,” February 2003, 5-6.

good . . . and they retain the ability to relay the sense of the historic railroading era.”<sup>24</sup> Garcia did not individually identify, describe, or address individual integrity of any of the 41 trestles under evaluation. To date, it does not appear that the findings from this evaluation have been reviewed, or concurred with, by the Office of Historic Preservation.

Additionally, in 2003, JRP inventoried and evaluated an adjacent segment of the NWP and two of its associated features (California Park Hill Railroad Tunnel and a wood trestle over Auburn Street) for the report entitled “Historical Resources Inventory and Evaluation Report: Northwestern Pacific Railroad Segment, California Park Hill Railroad Tunnel Project (2003).” JRP found that that segment of railroad, which included a trestle and tunnel, did not appear to meet the criteria for listing in either the California or National registers. Consequently, the tunnel, trestle and rail segment were determined, by consensus, to be ineligible in 2005.<sup>25</sup> The current survey updates those previous evaluations for NWP and evaluates a contiguous segment of the abandoned rail line. The potential period of significance for which this segment was evaluated is 1912-1913, the years when the tracks were built, and 1941, the year NWP shifted its southern terminal for steam passenger service to San Rafael and ended electric interurban service throughout southern Marin County. Similarly, the period of significance for the trestle and bridge would span between 1924, when it was constructed, and 1941.

The first railroad tracks laid over this extant alignment were constructed by San Francisco & San Rafael Railroad as part of the railroad between Tiburon and San Rafael in 1884 to connect a standard gauge line to ferry service on San Francisco Bay. The line was a single track, approximately nine miles long. After NWP incorporated in 1907, the railroad began installing double tracks along its alignment, including the line between Detour and San Rafael, which included the 0.5-mile section under study. The extant tracks documented on this form were completed by 1913 and were part of the main line for steam passenger service out of Sausalito and the main line for freight out of Tiburon. This segment of track again came under scrutiny in the 1920s during a general modernization of NWP resources. During 1924, NWP spent over \$800,000 in Marin County on improvements, part of which included installing the electric interurban third rail system over the Baltimore Park-Detour cut-off and the section between Detour and San Rafael. The trestle over Corte Madera Creek was also constructed during this improvement campaign. The last electric interurban train in southern Marin County ran until February 1941 and that same year, the southern terminal of NWP passenger operations shifted from Sausalito to San Rafael. It being no longer necessary, NWP removed both electric third rail and replaced the original 1884 track. While the rails

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<sup>24</sup> Garcia and Associates, Department of Parks and Recreation (DPR) 523 Form for Open Deck Trestles of the Northwestern Pacific Railroad, May 1, 2003, prepared for the report “Draft Architectural Resource Inventory and National Register Evaluation for the Sonoma Marin Area Rail Transit (SMART) Project (2003); “Draft Environmental Impact Report, Sonoma Marin Area Rail Transit Project,” (November 2005) 3-249 through 3-251.

<sup>25</sup> California Office of Historic Preservation, California Historic Resources Information System (CHRIS), updated September 18, 2006.

along the trestle over Corte Madera Creek appear to date to the mid 1920s, the non-operational, single track segment between Sir Francis Drake Boulevard and the California Park Hill Tunnel dates to approximately 1913.

The 0.5-mile segment (and trestle) documented on this form was constructed at the same time and with similar, if not identical, methods and materials to the adjacent and previously-evaluated segment north of the California Park Hill Railroad Tunnel. As with that segment, this segment does not appear to be eligible for CRHP under Criteria 1, 2, 3 or 4 (or NRHP Criteria A, B, C, or D). Completed in 1912-1913, this track was one of two along this rail alignment (the other being the original San Francisco & San Rafael Railroad tracks constructed in 1884). By the 1920s, NWP upgraded this segment to include an electric third rail; however, both the 1884 and 1920s tracks have since been removed and a substantial portion of the rails and ties along the current segment are no longer extant or are buried beneath a gravel parking lot constructed within the last twenty years. The trestle has also been altered, namely by the removal of a large section (over 165 feet in length) of the structure in 2001, which conveyed the tracks over Sir Francis Drake Boulevard. In addition to these changes, the construction of modern-day US 101 immediately west of the railroad and modern offices buildings to the east, have substantially compromised this segment's integrity of setting, feeling, association, materials, craftsmanship and design.

Even if the segment appeared to retain sufficient integrity, it would not appear to be eligible under Criterion 1-4. Under Criterion 1 (NRHP Criterion A) NWP overall does not appear to have opened up new areas for social, economic, commercial, or industrial development, nor once built, did it appear to have any immediate and/or substantial effects to the surrounding area, either at the local, state or national level. Incorporated in 1907, NWP was a consolidation of numerous lines built to meet a specific demand, to facilitate the movement of local products to a wider market, though their construction did not bring immediate or substantial effects to a geographic location. Throughout the nineteenth century, the North Bay counties of Marin and Sonoma continually searched for ways to expand market potential for their local products. Because they were separated by the bay from San Francisco, their main market, connecting to water transportation was imperative. Farming communities established in the 1850s first hauled their goods over wagon roads to rivers that connected to the steam ferryboats, a system that existed on the San Francisco Bay from the early days of the gold rush. These early railroad lines were built to facilitate a process already occurring by other transportation methods. While one could argue that these predecessor lines were built to meet one specific demand, their construction did not bring an immediate or substantial effect to their geographic location. The original lines did not open new areas for development, but were rather an attempt by local citizens to use more modern transportation technology to improve existing access to market. In addition, the lines were not financially successful. Railroad entrepreneurs expected to turn a profit with their investments. Such was not the case in this area, as evidenced by the fact that approximately one-third of the companies that became part of the NWP never laid track. From a financial perspective, the predecessor lines of NWP were not a success.

The same can be said for NWP after its incorporation. Formation of NWP occurred through the desire of the SP and Santa Fe to profit from the north coast timber industry freight market, and building a rail line connecting north coast lumber mills with the San Francisco shipping lines was long desired by the industry. Because of enormous costs, construction needed the financial backing of companies of the size of SP and Santa Fe. Even these two major railroads recognized that their financial interest dictated a merger rather than competition. Upon incorporation, NWP constructed the line through the Eel River canyon and opened through service to Eureka. However, the line between Willits and Eureka was finally completed in 1914, at the end of the age of dominance of railroad transport. The automobile was already having an impact on transportation trends, and California was in the beginning stages of developing a state highway system.

Although the impetus for incorporating NWP was to move freight, mainly timber products, from the north coast lumber mills to San Francisco market and distribution centers, fluctuation in the timber industry required a broader approach to financial stability for NWP. Passenger service became the primary concern in the early years after incorporation. NWP ran a complicated network of narrow gauge local freight and passenger lines, standard gauge local freight and passenger lines, and electrified interurban standard gauge lines through established communities. NWP pursued an aggressive marketing program promoting recreation destinations and Marin County real estate, although had marginal success. Population statistics indicate a slight decrease in San Rafael's population between 1910 and 1920. Additionally, although throughout Marin County population increased during the 1910-1920 decade, increases were significantly below population increases in other San Francisco Bay Area counties. Population statistics indicate a significant growth in population between 1920 and 1930 throughout Marin County, but increases were slightly below population increases in the San Francisco Bay Area counties.<sup>26</sup> This growth was perhaps enhanced by a generally developing infrastructure, but was not particularly attributable to NWP or its rehabilitation projects.

Marketing the Redwood Coast as a recreation destination and promoting Marin County real estate projects proved moderately successful in boosting revenues, but could not offset the financial losses of the freight service and electric railway. In inheriting the electric interurban system through consolidation, NWP faced a continual struggle to run a cost-effective and efficient line. NWP undertook massive updating projects to improve passenger service over the aging lines with realignment projects, rebuilding tunnels, trestles, and bridges, and replacing aging rolling stock. None of the measures proved effective. Heavy annual losses caused Santa Fe to sell out to SP in 1929. Continued losses prompted SP to abandon the electric interurban line. Throughout its history, NWP struggled to be profitable. This does not suggest that the NWP was particularly influential in north bay development, certainly not in the way that other rail lines (such as the SP line through the San Joaquin Valley) were in other areas of California.

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<sup>26</sup> "Historical Census Population of Places, Towns, and Cities in California, 1850-1990."

When examining the single 0.5-mile segment of NWP individually for significance under Criterion 1 (National Register Criterion A), it does not appear to be eligible, as it does not appear to be associated with any historic events that have made a significant impact on history at the local, state, and national level. This alignment, originally constructed in 1884, was one of many local railroads built in Marin County to provide transportation for both freight and local citizens to San Francisco. In this regard, the segment does not appear to be significant, as it was not the first rail line in the county nor was it built for any reason other than to provide improved transportation for freight and passengers. Additionally, this alignment dates to 1912-1913 when NWP double-tracked the line between Detour and San Rafael as part of a general updating of resources. Thus, the extant tracks and trestle were not the first on site.

Under Criterion 3 (National Register Criterion C), neither the extant railroad segment nor its associated trestle and bridge appear to be eligible as no special engineering or construction techniques were known to be used in the construction of this rail segment or in the construction of the trestle and bridge over Corte Madera Creek. The bridge and trestle were constructed to replace deteriorated and outdated single-track structures likely built by San Francisco & San Rafael Railroad line during the nineteenth century. According to NWP records in 1922, the trestle and bridge formed “the only single track section of 10 ½ miles of double track, and the train movement over the structure is heavy and rapidly increasing, it is deemed advisable to replace the trestle with a double track structure, additional pilings, shorter span and heavier members; also replace the present swing drawbridge with a double track Scherzer steel structure of the rolling lift type.”<sup>27</sup> Construction of both structures was delayed more than two years and completed in 1924 for an approximate cost of \$144,000.<sup>28</sup>

The modern-day bascule bridge is attributed to William Scherzer, who first patented his rolling lift bascule bridge in 1893. Scherzer’s design was the first movable bridge that could quickly open spans of considerable length and weight completely out of the navigable waters.<sup>29</sup> Operation of the Scherzer rolling lift is best described by Bob Hayden in *Modern Railroad Trestles and Bridges*: “As the pinion (small driving gear) rotates along a fixed horizontal track, the bridge structure rocks or rolls back on the quadrant tract (near track level). The leaf rises, and the counterweight lowers”<sup>30</sup> There were four main advantages to the rolling lift bascule bridge over its contemporary trunnion-

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<sup>27</sup> Gregory King, “Evaluation of the Trestle over Sir Francis Drake Boulevard ;” Northwestern Pacific Railroad Company, “Executive Authority, No. 1383, AFE P-3611, Greenbrae: Renewal of trestle and of drawbridge over Corte Madera Creek, July 26, 1922,” Northwestern Pacific Railroad Collection, MS56, Series 4, Box 8 (California State Railroad Museum Library).

<sup>28</sup> Northwestern Pacific Railroad Company, “Executive Authority, No. Sup. 1383, AFE No. Sup. P3011, Greenbrae: Double track trestle and drawbridge, September 2, 1924,” Northwestern Pacific Railroad Collection, MS56, Series 4, Box 8 (California State Railroad Museum Library).

<sup>29</sup> “Moveable Bridges,” p 90-91, online on October 27, 2009 at [www.deldot.gov/archaeology/historic\\_pres/delaware\\_bridge\\_book/pdf/movable.pdf](http://www.deldot.gov/archaeology/historic_pres/delaware_bridge_book/pdf/movable.pdf).

<sup>30</sup> Bob Hayden, ed., *Model Railroad Bridges and Trestles: A Reprint from Model Railroader Magazine, Handbook Number 33*. (Waukesha, WI: Kalmbach Books, 1992) 25-27..

type bascule and the nineteenth-century swing span bridges: 1) capable of having a wider clear span (i.e. bridge span crosses the water without obstructing the waterway); 2) increase dock space; 3) did not require counterweight pit (as in the trunnion); 4) was much faster to open and close.<sup>31</sup> In addition, it was reported that they were more economical because spans could be shorter, thus reducing the amount and cost of materials and mechanical operations necessary to operate the bridges.<sup>32</sup>

William Scherzer died the same year his innovative design was patented, however his brother (and fellow engineer and patentee) managed his patents through their company, the Scherzer Rolling Lift Bridge Company, which was headquartered in Chicago.<sup>33</sup> Over the next decade, the popularity of the Scherzer rolling lift bridges grew steadily and Scherzer bridges had been constructed all over the world. The most popular design was with the overhead counterweight; however, an underneath counterweight, as is found with the Greenbrae bridge, was also utilized. In 1908 over 75 Scherzer bridges were in operation in the US, half of those were for railroads, and in 1913, the Scherzer company advertized that nearly 200 of its bridges had been constructed worldwide and that their bridges could be opened or closed in thirty seconds.<sup>34</sup> By 1916, the Scherzer bridge was the most popular bascule bridge being constructed.<sup>35</sup> The Scherzer bridge remained a favorable bridge type for railroads through the 1920s; however by the early 1920s, most of Scherzer's main patents had expired which allowed other bridge firms to design and construct their own Scherzer-type bascule bridges. The company ceased operation in the late 1930s.<sup>36</sup>

While early NWP records indicate the proposed construction of a Scherzer bridge at this location, there is no evidence that the Scherzer Rolling Lift Bridge Company designed this specific bridge. Given that many of the Scherzer patents had expired by this time, it is possible that this bridge was designed by one of the company's competitors. Therefore, as a modest, hand-operated Scherzer-type bascule railroad bridge, it does not appear to be eligible under Criterion 3. Even if this bridge was an original Scherzer design, it is a relatively late and modest example of its type and would not appear to be eligible under Criterion 3. Similarly, trestle is one of many constructed during the twentieth century along this line utilizing standard plans, therefore it does not appear to meet Criterion 3.<sup>37</sup> Research for this project did not reveal that this railroad line has any associations with persons who gained prominence in their professions or made significant contributions in local, state, or national history. Therefore, this segment of NWP does not appear eligible under Criterion 2

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<sup>31</sup> J. A. L. Waddell, *Bridge Engineering*, Volume 1, (New York, John Wiley & Sons, Inc., 1916) 701; *Scherzer Rolling Lift Bridges*, (Chicago: Scherzer Bridge Company, 1908) 12-13.

<sup>32</sup> *The Encyclopedia Americana: a Library of Universal Knowledge*, Volume 4 (New York: The Encyclopedia Americana Corp., 1918) 529.

<sup>33</sup> "Moveable Bridges," p 90-91.

<sup>34</sup> *Scherzer Rolling Lift Bridges*, 54-60; *The World's Work*, Volume XXV, November 1912-April 1913, 801.

<sup>35</sup> J. A. L. Waddell, *Bridge Engineering*, 714.

<sup>36</sup> "Moveable Bridges," p 90-91.

<sup>37</sup> Gregory King, "Evaluation of the Trestle over Sir Francis Drake Boulevard."

(National Register Criterion B). Furthermore, built environments are rarely significant under Criterion 4 (National Register Criterion D) and this segment of rail line does not appear likely to yield important historical information. This property has been evaluated in accordance with Section 15064.5 (1)(2)-(3) of the CEQA Guidelines using the criteria outlined in Section 5024.1 of the California Resources Code.

## 7 Conclusions

JRP prepared this HRER as part of the Central Marin Ferry Connection Project, Phase 1 to comply with the CEQA as it pertains to historical resources. Only one historic-era resource was evaluated to determine their eligibility for the California for this investigation. That single resource was evaluated in accordance with Section 15064.5 (a)(2)-(3) of the CEQA Guidelines, using criteria outlined in Section 5024.1 of the California Public Resources Code.

### 7.1 Section 106 Compliance

JRP also prepared this report to comply with applicable sections of the National Historic Preservation Act (NHPA) and the implementing regulations of the Advisory Council on Historic Preservation (ACHP) as these pertain to federally funded undertakings and their impacts on historic properties. This HRER has been prepared in accordance with the January 1, 2004, *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (the Section 106 PA).

The single historic-era resource within the architectural study area (or Area of Potential Effects) was evaluated to determine its eligibility for the National Register for this investigation in compliance with the Section 106 PA (16 U.S.C. 470f and 470h-2) and its implementing regulations (36 CFR 800.4). The remaining parcels within the study area were vacant or contained buildings, structures or objects that were constructed after 1963 or were exempt from further study in accordance with the Section 106 PA.<sup>38</sup> Therefore, no other resources required further studies to resolve the question of their eligibility. Toni Webb of JRP, who meets the Professionally Qualified Staff standards specified in Attachment 1 of the Section 106 PA for architectural historian, reviewed the project's architectural Area of Potential Effects and confirmed that the only other properties present within the study area meet the criteria for Attachment 4 of the Section 106 PA (Properties Exempt from Evaluation).

The tables below summarize the results of this report for all of the one historic-era resource within the architectural APE.

**Table 1. Properties Listed in the NRHP**

None

**Table 2. Properties Previously Determined Eligible for the NRHP**

None

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<sup>38</sup> The Secretary of the Interior guidelines for evaluation of National Register eligibility is for buildings, structures or features 50 years of age or older. For this project the age limit was lowered to include resources 45 years or older (constructed in 1961 or earlier) to account for lead-time between preparation of environmental documentation and actual project construction. Properties with buildings, structures and features built after 1962, and those subject to exemption under the Section 106 PA, were not included.

**Table 3. Properties Previously Determined Not Eligible for the NRHP**

None

**Table 4. Properties Determined Eligible for the NRHP As a Result of the Current Study**

None

**Table 5. Resources That Are Historical Resources for the Purposes of CEQA**

None

**Table 6. Properties Determined Not Eligible for the NRHP As a Result of the Current Study**

APN	Resource Name	Year Built	OHP Status Code	Map Reference No.
018-171-019 018-171-018 018-171-017 018-172-001 018-172-002	Northwest Pacific Railroad and trestle and bascule bridge over Corte Madera Creek	1912-1913  1924	6Z	1

**Table 7. Resources That Are Not Historical Resources Under CEQA Per CEQA Guidelines §15064.5 Because They Do Not Meet the California Register Criteria Outlined in PRC §5024.1**

APN	Resource Name	Year Built	OHP Status Code	Map Reference No.
018-171-019 018-171-018 018-171-017 018-172-001 018-172-002	Northwest Pacific Railroad and trestle and bascule bridge over Corte Madera Creek	1912-1913  1924	6Z	1

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Northwestern Pacific Railroad. *Re-Driving of the Golden Spike: Northwestern Pacific Rail Service Restored After 1964 Flood Damage*. Northwestern Pacific Railroad Company, 1965.

*Pacific Traveler*

Public Utilities Commission. "Profile and Alignment Mapping of the Northwestern Pacific Railway, Tiburon to Sonoma County Line, Marin County, California," October 3, 1912. Public Utilities Commission Records, California State Archives, Sacramento, California.

*Scherzer Rolling Lift Bridges*. Chicago: Scherzer Bridge Company, 1908.

Stindt, Fred A. and Guy L. Dunscomb. *The Northwestern Pacific Railroad, Redwood Empire Route*. Redwood City, CA: Fred A. Stindt, publisher, 1964.

Trimble, Paul. *Interurban Railways of the Bay Area*. Fresno, CA: Valley Publishers, 1977.

United States Department of the Interior. *Guidelines for Applying the National Register Criteria for Evaluation*. National Register Bulletin 15. Washington, D.C.: U.S. Government Printing Office: 1991, revised 1995-2002.

\_\_\_\_\_. *Guidelines for Evaluating and Nominating Properties that have Achieved Significance within the Last Fifty Years*. National Register Bulletin No. 22. Washington, D.C.: Government Printing Office, 1979, revised 1990 and 1996.

Waddell, J. A. L. *Bridge Engineering*, Volume 1. New York, John Wiley & Sons, Inc., 1916.

*Western Railroader*

## 9 Preparers' Qualifications

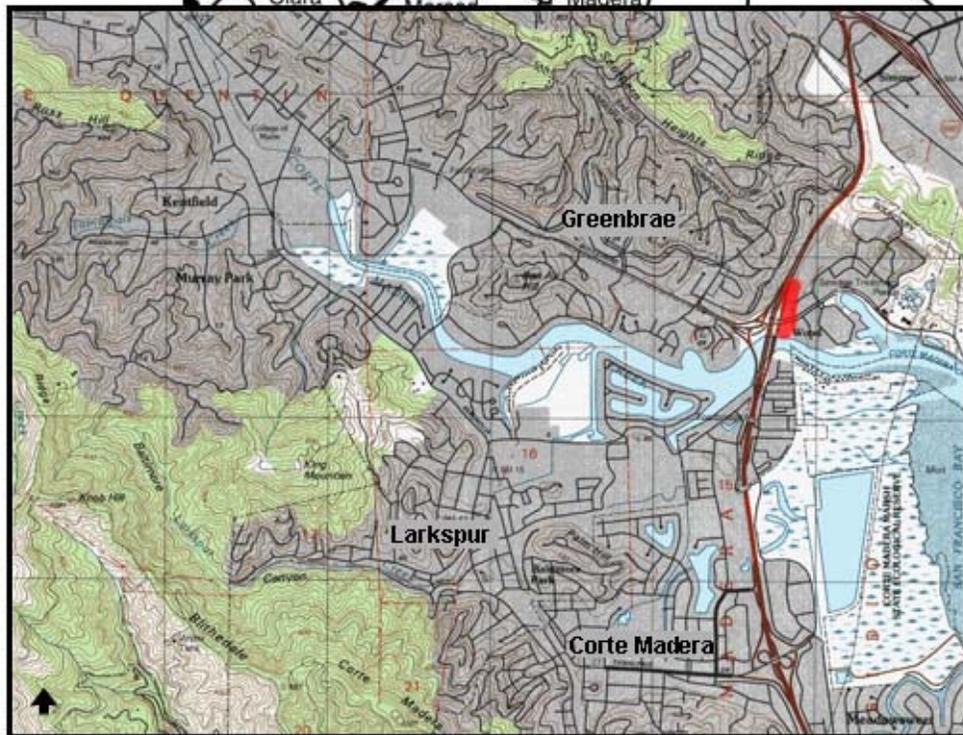
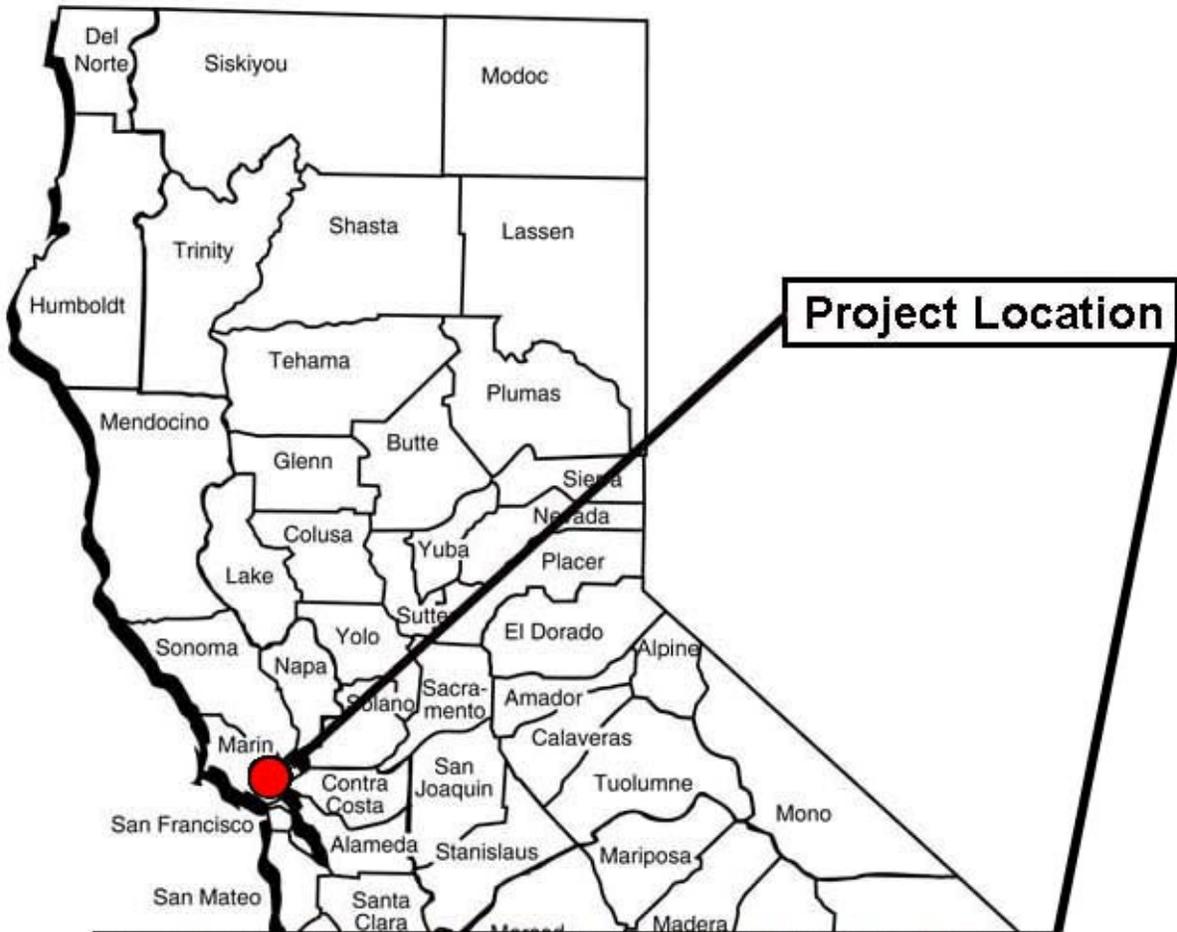
This project was conducted under the general direction of Rand F. Herbert (M.A.T. in History, University of California, Davis), a principal at JRP with more than 28 years experience conducting these types of studies. Mr. Herbert provided overall guidance and edited the report. Based on his level of experience and education, Mr. Herbert qualifies as an historian under the Secretary of the Interior's Professional Qualification Standards (as defined in 36 CFR Part 61).

JRP architectural historian Toni Webb was the project manager / lead historian for the project. Ms. Webb conducted field survey, research, report preparation, and contributed to the preparation of form. Ms. Webb received a B.F.A. in Historic Preservation from the Savannah College of Art & Design and has over ten years of experience in public history and historic preservation. Based on her level of experience and education, Ms. Webb qualifies as an architectural historian under the Secretary of the Interior's Professional Qualification Standards (as defined in 36 CFR Part 61).



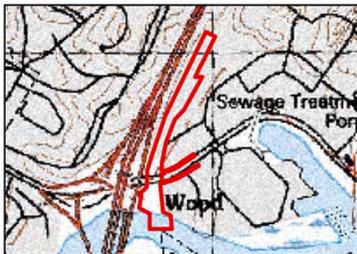
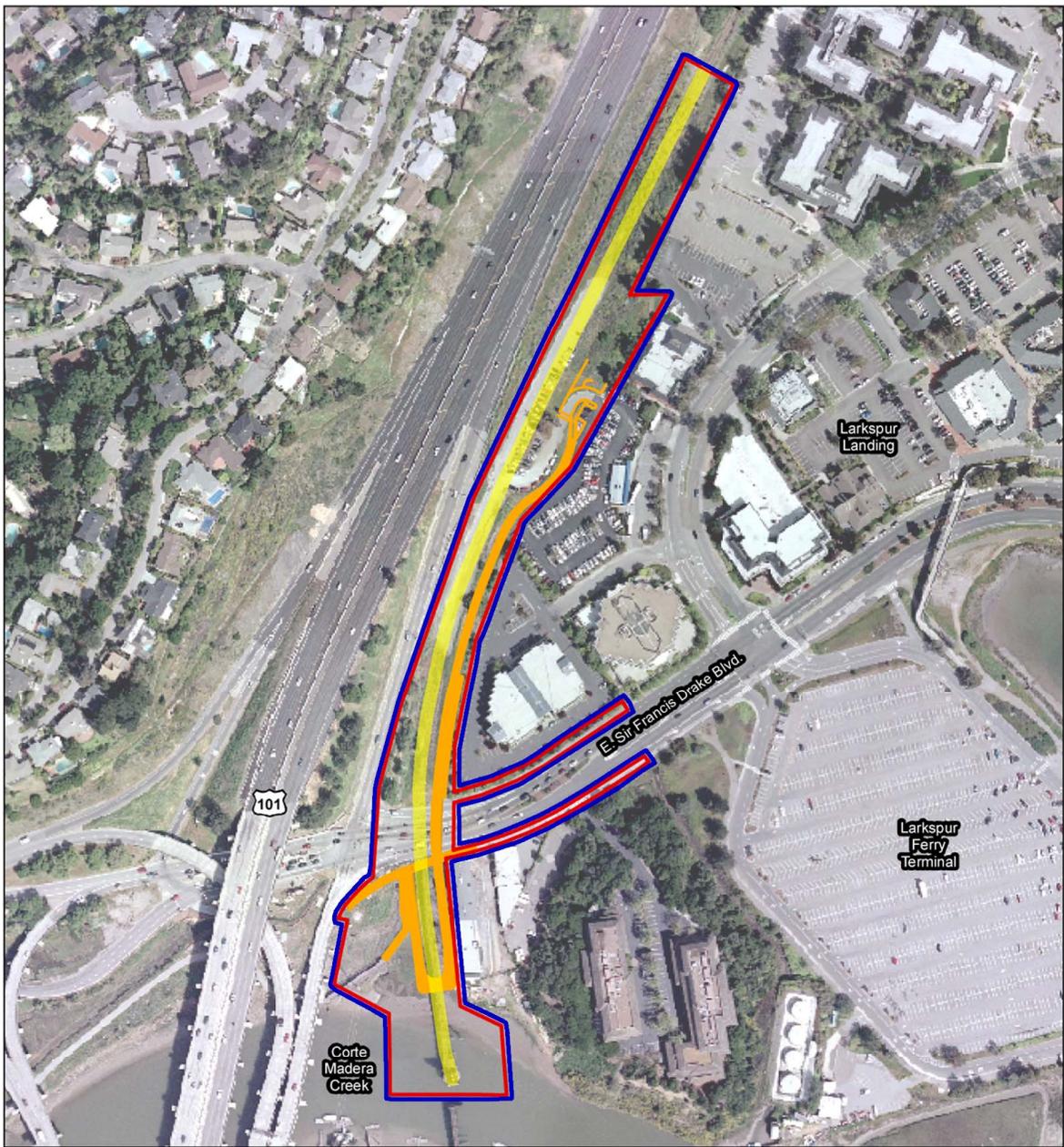
**Appendix A**  
**Maps**





Map 1





- Proposed Pathway Footprint
- CMFC Study Area

- Architectural Study Area
- Map Reference No. 1



Source: Aerial-NAIP 2005 - Marin County; Topo-CASIL o\_sw0301.sid; Study Area - digitized Jacobs

**JE JACOBS**  
Carter Burgess April 20, 2010

Map 2



**Appendix B**  
**DPR 523 Form**



State of California – The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
**PRIMARY RECORD**

Primary # \_\_\_\_\_  
HRI # \_\_\_\_\_  
Trinomial \_\_\_\_\_  
NRHP Status Code 6Z

Other Listings \_\_\_\_\_  
Review Code \_\_\_\_\_ Reviewer \_\_\_\_\_ Date \_\_\_\_\_

**P1. Other Identifier:** Northwestern Pacific Railroad

**\*P2. Location:**  Not for Publication  Unrestricted  
and (P2b and P2c or P2d. Attach a Location Map as necessary.)

\*a. County Marin

\*b. USGS 7.5' Quad San Rafael Date 1995 T \_\_\_\_; R \_\_\_\_;  $\frac{1}{4}$  of Sec \_\_\_\_; \_\_\_\_\_ B.M.

c. Address \_\_\_\_\_ City Larkspur Zip \_\_\_\_\_

d. UTM: (give more than one for large and/or linear resources) Zone \_\_\_\_\_; \_\_\_\_\_ mE/ \_\_\_\_\_ mN

e. Other Locational Data: APNs 018-171-019, 018-171-018, 018-171-017, 018-172-001, and 018-172-002

**\*P3a. Description:**

This form addresses a 0.5-mile discontinuous segment (between PM 14.7 and 15.3) of the Northwestern Pacific Railroad located in Larkspur. From its northernmost point at the southern end of the Cal Hill Park Tunnel, this segment follows a southeasterly path generally parallels US 101 on the east side until Sir Francis Drake Boulevard, where it then takes to a more southern course to Corte Madera Creek. The segment includes a portion of a wood trestle constructed in 1924 and an attached bascule bridge. This railroad segment is no longer in service and vegetation and earth covers the tracks and ballast. The former rail line at this location consists of a single set of at-grade tracks. Rails rest on a mix of pressure-treated and non-pressure treated ties. A large section of the rail alignment (approximately 780 feet) has been converted to graveled parking lots for nearby businesses and as a result, tracks and ties in this area have been removed and/or buried. Similarly, while only tracks are evident just north of the parking lot, it is possible that ties are buried beneath dirt and vegetation up to the tunnel. The open deck wood trestle carries a single track. According to an inventory and evaluation of this trestle completed by Caltrans in 1988, this 1924 structure was upgraded in the 1970s. Presently, the trestle is about 408 feet long, 15 feet high, and consists of series of five-pile bents with transverse and longitudinal bracing (X-bracing) (See Continuation Sheet)

**\*P3b. Resource Attributes:** (List attributes and codes) (HP11) Railroad; (HP19) Bridge

**\*P4. Resources Present:**  Building  Structure  Object  Site  District  Element of District  Other (Isolates, etc.)

P5a. Photo of Drawing (Photo required for buildings, structures, and objects.)



**P5b. Description of Photo:**

General view of extant tracks just north of Sir Francis Drake Boulevard, camera facing south

**\*P6. Date Constructed/Age and Sources:**

Historic  Prehistoric  Both  
Alignment 1884; Tracks ca. 1912-1913; trestle 1924 (historic documents)

**\*P7. Owner and Address:**

Sonoma-Marín Area Rail Transit District, 750 Lindero Street, Suite 200, San Rafael, CA 94901

**\*P8. Recorded by:**

Toni Webb, JRP Historical Consulting, LLC, 1490 Drew Ave, Suite 110, Davis, CA 95618

**\*P9. Date Recorded:** June 25, 2008 & October 2009

**\*P10. Survey Type:** Intensive

**\*P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Evaluation Report for Central Marin Ferry Connection, Phase I."

**\*Attachments:**  NONE  Location Map  Sketch Map  Continuation Sheet  Building, Structure, and Object Record  Archaeological Record  District Record  Linear Feature Record  Milling Station Record  Rock Art Record  Artifact Record  Photograph Record  Other (list) \_\_\_\_\_

B1. Historic Name: Northwestern Pacific Railroad

B2. Common Name: Northwestern Pacific Railroad

B3. Original Use: Railroad B4. Present Use: Abandoned rail line

\*B5. Architectural Style: None

\*B6. Construction History: Original rail alignment 1884; current tracks ca. 1912-1913; trestle & bridge 1924, upgraded 1970s

\*B7. Moved?  No  Yes  Unknown Date: \_\_\_\_\_ Original Location: \_\_\_\_\_

\*B8. Related Features: \_\_\_\_\_

B9. Architect: \_\_\_\_\_ b. Builder: Northwestern Pacific Railroad

\*B10. Significance: Theme n/a Area n/a

Period of Significance n/a Property Type n/a Applicable Criteria n/a

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

This 0.5-mile segment (including its associated trestle and bridge) of the Northwestern Pacific Railroad does not appear to meet the criteria for listing in the California Register or National Register, nor does it appear to be a historical resource for the purposes of CEQA. Within the last twenty years at least two sections of this rail line have been subject to National Register evaluations. First, Caltrans evaluated the trestle and bascule bridge) in 1988 and found that they did not appear to be eligible for the National Register. Five years later Carey & Co., Inc. prepared a report entitled "Historic Resource Evaluation, Larkspur Rail Trestle, Larkspur, California" for the City of Larkspur. According to that report the trestle as a whole may be historically significant under Criterion 1, for its association with "the development and expansion of the railways in Marin County," and Criterion 3, for its construction method and use of wood. However, Carey & Co. concluded that "while the Larkspur rail trestle may be considered historically significant as a complete structure, the integrity of the 100-foot section of the structure ... has been severely compromised." Thus that specific segment of the trestle did not meet the CRHR eligibility criteria. That same year, Garcia and Associates (Garcia) completed an evaluation of open deck trestles along a segment of the NWP between Larkspur Landing and Cloverdale for the report "Draft Architectural Resources Inventory and National Register Evaluation for the Sonoma Marin Area Rail Transit (SMART) Project." In that survey, Garcia found that trestles appeared to be contributors to a larger NWP historic district that extended from Novato to Petaluma, which included culverts, siding, signal lights, trestles and telephone poles. According to the DPR 523 form prepared by Garcia for the trestles, the rail segment appeared eligible to the National Register at the state and local level under Criterion A, within the context of economic development (including transportation & communication), and its period of significance was identified as 1874-1955. (See Continuation Sheet)

B11. Additional Resource Attributes: (List attributes and codes) \_\_\_\_\_

\*B12. References: "The Donahue Extension," Marin County Journal, October 25, 1884, p2; Public Utilities Commission, "Profile and Alignment Mapping . . . Tiburon to Sonoma County Line, Marin County, California," October 3, 1912; "Railroad Company Expends \$800,000," *Marin County Journal*, October 2, 1924, p8; Gregory King, "Evaluation of the Trestle over Sir Francis Drake Boulevard in the City of Larkspur" (Sacramento: California Department of Transportation, 1988); Garcia and Associates, DPR523 Form for Open Deck Trestles of the Northwestern Pacific Railroad (May 1, 2003); "Draft Environmental Impact Report, Sonoma Marin Area Rail Transit Project," (November 2005) 3-249 through 3-251; Dan Swearingen, "Dan's Train Blog," accessed online at [www.polyweb.com/dans\\_rr/blog/index.php/archives/111](http://www.polyweb.com/dans_rr/blog/index.php/archives/111) on October 27, 2009; California Historical Resources Information System (CHRIS), September 18, 2006: Northwestern Pacific Railroad, the Auburn Street Trestle, and the California Park Hill Tunnel are all assigned the California Historical Resource Status Code of 6Y (Determined ineligible for NRHP by consensus through the 106 process).

B13. Remarks:

\*B14. Evaluator: Toni Webb

\*Date of Evaluation: June 25, 2008

(This space reserved for official comments.)

See continuation sheet.

**P3a. Description (continued):**

treated with creosote. The outer two piles in each tower are battered. A pile cap over each section of piles supports the stringer. Heavy beams, placed parallel beneath the steel rails, are bolted to the cap. Posts are bored directly into the ground. The portion of the trestle crossing Sir Francis Drake Boulevard (approximately 164') has been removed. Remnants of the trestle's concrete abutment is still extant within the ballast on the north side of Sir Francis Drake Boulevard. In 2001 the section of the section (about 164') that crosses Sir Francis Drake Boulevard was removed.

The bridge (Structure No. 14.61), also constructed in 1924, is a 40-foot, clear span, single-leaf Scherzer-type bascule bridge set two concrete piers. Overall length of the steel rolling lift deck girder bridge is 67'-5". The bridge includes operation platforms with pipe handrails on the east and west side (north end) of bridge.

**B10. Significance (continued):**

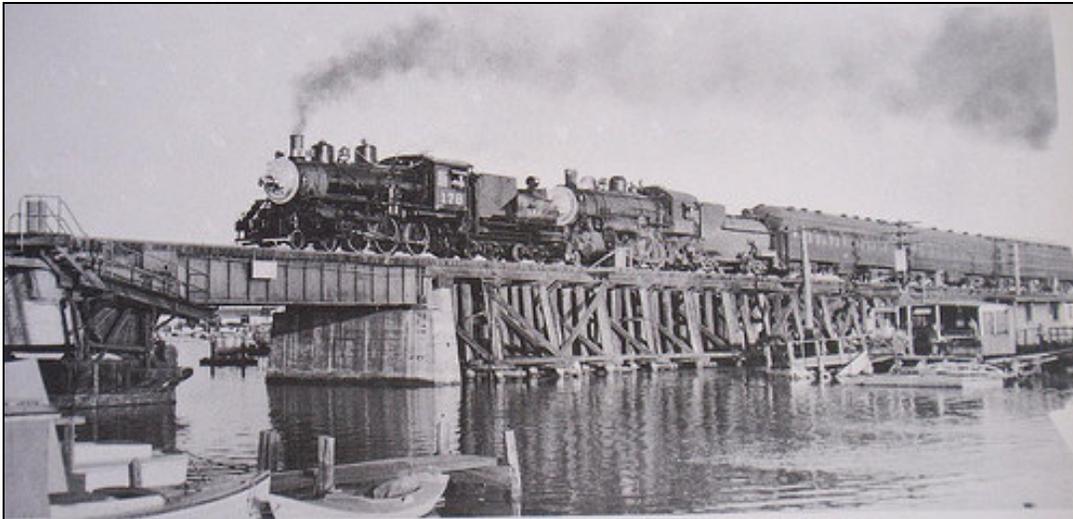
The DPR form documented "representative examples of all resources of this type [trestles]" and briefly addressed integrity of those resources overall by noting "with exceptions, the condition of the trestles are quite good . . . and they retain the ability to relay the sense of the historic railroading era." Garcia did not individually identify, describe, or address individual integrity of any of the 41 trestles under evaluation. To date, it does not appear that the findings from this evaluation have been determined eligible for the National Register.

Additionally, in 2003, JRP inventoried and evaluated an adjacent segment of the Northwestern Pacific Railroad (NWP) and two of its associated features (California Park Hill Railroad Tunnel and a wood trestle over Auburn Street) for the report entitled "Historical Resources Inventory and Evaluation Report: Northwestern Pacific Railroad Segment, California Park Hill Railroad Tunnel Project (2003)." JRP found that that segment of railroad, which included a trestle and tunnel, did not appear to meet the criteria for listing in either the California or National registers. Consequently, the tunnel, trestle and rail segment were determined, by consensus, to be ineligible in 2005.<sup>1</sup> The current survey updates previous evaluations for NWP and evaluates an abandoned segment contiguous to the California Park Hill Railroad Tunnel. The potential period of significance for which this segment was evaluated is 1912-1913, the years when the tracks were built, and 1941, the year NWP shifted its southern terminal for steam passenger service to San Rafael and ended electric interurban service throughout southern Marin County. Similarly, the period of significance for the trestle and bridge would span between 1924, when they were constructed, and 1941.

The first railroad tracks laid over this extant alignment were constructed in 1884 by San Francisco & San Rafael Railroad as part of the railroad between Tiburon and San Rafael to connect a standard gauge line to ferry service on San Francisco Bay. The line was single track and approximately nine miles long. After NWP incorporated in 1907, the railroad began installing double tracks along its alignment, including the line between Detour and San Rafael, which included the 0.5-mile section under study. The extant tracks documented on this form were completed by 1913 and were part of the main line for steam passenger service out of Sausalito and the main line for freight out of Tiburon. This segment of track again came under scrutiny in the 1920s during a general modernization of NWP resources. During 1924, NWP spent over \$800,000 in Marin County on improvements, part of which included installing the electric interurban third rail system over the Baltimore Park-Detour cut-off and the section between Detour and San Rafael. The trestle and bascule bridge over Corte Madera Creek was also constructed during this improvement campaign. The last electric interurban train in southern Marin County ran until February 1941 and that same year, the southern terminal of NWP passenger operations shifted from Sausalito to San Rafael. No longer necessary, NWP removed both electric third rail and original 1884 track. While the rails along the trestle and bridge over Corte Madera Creek appear to date to the mid 1920s, the non-operational, single track segment between Sir Francis Drake Boulevard and the California Park Hill Tunnel dates to approximately 1913.

<sup>1</sup> California Office of Historic Preservation, California Historic Resources Information System (CHRIS), updated September 18, 2006.  
DPR 523L (1/95) \*Required Information

**B10. Significance (continued):**



**Trestle and bridge over Corte Madera Creek, ca. 1949, camera facing southeast. [Source: Dan Swearingen]  
See Photographs 2-4 for current condition of trestle and bridge.**

The 0.5-mile segment (and trestle) documented on this form was constructed at the same time and with similar, if not identical, methods and materials to the adjacent and previously-evaluated segment north of the California Park Hill Railroad Tunnel. As with that segment, this segment does not appear to be eligible for California Register under Criteria 1, 2, 3 or 4 (or National Register Criteria A, B, C, and D). Completed in 1912-1913, this track was one of two along this rail alignment (the other being the original San Francisco & San Rafael Railroad tracks constructed in 1884). By the 1920s, NWP upgraded this segment to include an electric third rail; however, both the 1884 and 1920s tracks have since been removed and a substantial portion of the rails and ties along the current segment are no longer extant or are buried beneath a gravel parking lot constructed within the last twenty years. The trestle has also been altered, namely by the removal of a large section (over 165 feet in length) of the structure in 2001, which conveyed the tracks over Sir Francis Drake Boulevard. In addition to these changes, the construction of modern-day US 101 immediately west of the railroad and modern offices buildings to the east, have substantially compromised this segment's integrity of setting, feeling, association, materials, craftsmanship and design.

Even if the segment appeared to retain sufficient integrity, it would not appear to be eligible under Criterion 1-4. Under Criterion 1 (National Register Criterion A) NWP overall does not appear to have opened up new areas for social, economic, commercial, or industrial development, nor once built, did it appear to have any immediate and/or substantial effects to the surrounding area, either at the local, state or national level. Incorporated in 1907, NWP was a consolidation of numerous lines built to meet a specific demand, to facilitate the movement of local products to a wider market, though their construction did not bring immediate or substantial effects to a geographic location. Throughout the nineteenth century, the North Bay counties of Marin and Sonoma continually searched for ways to expand market potential for their local products. Because they were separated by the bay from San Francisco, their main market, connecting to water transportation was imperative. Farming communities established in the 1850s first hauled their goods over wagon roads to rivers that connected to the steam ferryboats, a system that existed on the San Francisco Bay from the early days of the gold rush. These early railroad lines were built to facilitate a process already occurring by other transportation methods. While one could argue that these predecessor lines were built to meet one specific demand, their construction did not bring an immediate or substantial effect to their geographic location. The original lines did not open new areas for development, but were rather an attempt from local citizens to use more modern transportation technology to improve existing access to market. In addition, the lines were not financially successful. Railroad entrepreneurs expected to turn a profit with their investments. Such was not the case in this area, as evidenced by the fact that approximately one-third of the companies that became part of the NWP never laid track. From a financial perspective, the predecessor lines of NWP were not a success.

**B10. Significance (continued):**

The same can be said for NWP after its incorporation. Formation of NWP occurred through the desire of the SP and Santa Fe to profit from the north coast timber industry freight market, and building a rail line connecting north coast lumber mills with the San Francisco shipping lines was long desired by the industry. Because of enormous costs, construction needed the financial backing of companies of the size of SPRR and Santa Fe. Even these two major railroads recognized that their financial interest dictated a merger rather than competition. Upon incorporation, NWP constructed the line through the Eel River canyon and opened through service to Eureka. However, the line between Willits and Eureka was finally completed in 1914, at the end of the age of dominance of railroad transport. The automobile was already having an impact on transportation trends and California was in the beginning stages of developing a state highway system.

Although the impetus for incorporating NWP was to move freight, mainly timber products, from the north coast lumber mills to San Francisco market and distribution centers, fluctuation in the timber industry required a broader approach to financial stability for NWP. Passenger service became the primary concern in the early years after incorporation. NWP ran a complicated network of narrow gauge local freight and passenger lines, standard gauge local freight and passenger lines, and electrified interurban standard gauge lines through established communities. NWP pursued an aggressive marketing program promoting recreation destinations and Marin County real estate, although had marginal success. Population statistics indicate a slight decrease in San Rafael's population between 1910 and 1920. Additionally, although throughout Marin County population increased during the 1910-1920 decade, increases were significantly below population increases in other San Francisco Bay Area counties. Population statistics indicate a significant growth in population between 1920 and 1930 throughout Marin County, but increases were slightly below population increases in the San Francisco Bay Area counties.<sup>2</sup> This growth was perhaps enhanced by a generally developing infrastructure, but was not particularly attributable to NWP or its rehabilitation projects.

Marketing the Redwood Coast as a recreation destination and promoting Marin County real estate projects proved moderately successful in boosting revenues, but could not offset the financial losses of the freight service and electric railway. In inheriting the electric interurban system through consolidation, NWP faced a continual struggle to run a cost-effective and efficient line. NWP undertook massive updating projects to improve passenger service over the aging lines with realignment projects, rebuilding tunnels, trestles, and bridges, and replacing aging rolling stock. None of the measures proved effective. Heavy annual losses caused Santa Fe to sell out to SP in 1929. Continued losses prompted SP to abandon the electric interurban line. Throughout its history, NWP struggled to be profitable. This does not suggest that the NWP was particularly influential in north bay development, certainly not in the way that other rail lines (such as the Southern Pacific Railroad line through the San Joaquin Valley) were in other areas of California.

When examining the single 0.5-mile segment of NWP individually for significance under Criterion 1 (National Register Criterion A), it does not appear to be eligible, as it does not appear to be associated with any historic events that have made a significant impact on history at the local, state, and national level. This alignment, originally constructed in 1884, was one of many local railroads built in Marin County to provide transportation for both freight and local citizens to San Francisco. In this regard, the segment does not appear to be significant, as it was not the first rail line in the county nor was it built for any reason other than to provide improved transportation for freight and passengers. Additionally, this alignment dates to 1912-1913 when NWP double-tracked the line between Detour and San Rafael as part of a general updating of resources. Thus, the extant tracks and trestle were not the first on site.

Under Criterion 3 (National Register Criterion C), neither the extant railroad segment nor its associated trestle and bridge appear to be eligible as no special engineering or construction techniques were known to be used in the construction of this rail segment or in the construction of the trestle and bridge over Corte Madera Creek. The bridge and trestle were constructed to replace deteriorated and outdated single-track structures likely built by San Francisco & San Rafael Railroad line during the nineteenth century. According to NWP records in 1922, the trestle and bridge formed "the only single track section of 10 ½ miles of double track, and the train movement over the structure is heavy and rapidly increasing, it is deemed advisable to replace the trestle with a double track structure, additional pilings, shorter span and heavier members;

**B10. Significance (continued):**

also replace the present swing drawbridge with a double track Scherzer steel structure of the rolling lift type.”<sup>3</sup> Construction of both structures was delayed more than two years and completed in 1924 for an approximate cost of \$144,000.<sup>4</sup>

The modern-day bascule bridge is attributed to William Scherzer, who first patented his rolling lift bascule bridge in 1893. Scherzer’s design was the first movable bridge that could quickly open spans of considerable length and weight completely out of the navigable waters.<sup>5</sup> Operation of the Scherzer rolling lift is best described by Bob Hayden in *Modern Railroad Trestles and Bridges*: “As the pinion (small driving gear) rotates along a fixed horizontal track, the bridge structure rocks or rolls back on the quadrant tract (near track level). The leaf rises, and the counterweight lowers”<sup>6</sup> There were four main advantages to the rolling lift bascule bridge over its contemporary trunnion-type bascule and the nineteenth-century swing span bridges: 1) capable of having a wider clear span (i.e. bridge span crosses the water without obstructing the waterway); 2) increase dock space; 3) did not require counterweight pit (as in the trunnion); 4) was much faster to open and close.<sup>7</sup> In addition, it was reported that they were more economical because spans could be shorter, thus reducing the amount and cost of materials and mechanical operations necessary to operate the bridges.<sup>8</sup>

William Scherzer died the same year his innovative design was patented, however his brother (and fellow engineer and patentee) managed his patents through their company, the Scherzer Rolling Lift Bridge Company, which was headquartered in Chicago.<sup>9</sup> Over the next decade, the popularity of the Scherzer rolling lift bridges grew steadily and Scherzer bridges had been constructed all over the world. The most popular design was with the overhead counterweight; however, an underneath counterweight, as is found with the Greenbrae bridge, was also utilized. In 1908 over 75 Scherzer bridges were in operation in the US, half of those were for railroads, and in 1913, the Scherzer company advertized that nearly 200 of its bridges had been constructed worldwide and that their bridges could be opened or closed in thirty seconds.<sup>10</sup> By 1916, the Scherzer bridge was the most popular bascule bridge being constructed.<sup>11</sup> The Scherzer bridge remained a favorable bridge type for railroads through the 1920s; however by the early 1920s, most of Scherzer’s main patents had expired which allowed other bridge firms to design and construct their own Scherzer-type bascule bridges. The company ceased operation in the late 1930s.<sup>12</sup>

While early NWP records indicate the proposed construction of a Scherzer bridge at this location, there is no evidence that the Scherzer Rolling Lift Bridge Company designed this specific bridge. Given that many of the Scherzer patents had expired by this time, it is possible that this bridge was designed by one of the company’s competitors. Therefore, as a modest, hand-operated Scherzer-type bascule railroad bridge, it does not appear to be eligible under Criterion 3. Even if this bridge was an original Scherzer design, it is a relatively late and modest example of its type and would not appear to be

<sup>2</sup>“Historical Census Population of Places, Towns, and Cities in California, 1850-1990.”

<sup>3</sup> Gregory King, “Evaluation of the Trestle over Sir Francis Drake Boulevard ;” Northwestern Pacific Railroad Company, “Executive Authority, No. 1383, AFE P-3611, Greenbrae: Renewal of tresle and of drawbridge over Corte Madera Creek, July 26, 1922,” Northwestern Pacific Railroad Collection, MS56, Series 4, Box 8 (California State Railroad Museum Library).

<sup>4</sup> Northwestern Pacific Railroad Company, “Executive Authority, No. Sup. 1383, AFE No. Sup. P3011, Greenbrae: Double track trestle and drawbridge, September 2, 1924,” Northwestern Pacific Railroad Collection, MS56, Series 4, Box 8 (California State Railroad Museum Library).

<sup>5</sup> “Moveable Bridges,” p 90-91, accessed online at [www.deldot.gov/archaeology/historic\\_pres/delaware\\_bridge\\_book/pdf/movable.pdf](http://www.deldot.gov/archaeology/historic_pres/delaware_bridge_book/pdf/movable.pdf) on October 27, 2009.

<sup>6</sup> Bob Hayden, ed., *Model Railroad Bridges and Trestles: A Reprint from Model Railroader Magazine, Handbook Number 33.* (Waukesha, WI: Kalmbach Books, 1992) 25-27..

<sup>7</sup> J. A. L. Waddell, *Bridge Engineering*, Volume 1, (New York, John Wiley & Sons, Inc., 1916) 701; *Scherzer Rolling Lift Bridges*, (Chicago: Scherzer Bridge Company, 1908) 12-13.

<sup>8</sup> *The Encyclopedia Americana: a Library of Universal Knowledge*, Volume 4 (New York: The Encyclopedia Americana Corp., 1918) 529.

<sup>9</sup> “Moveable Bridges,” p 90-91.

<sup>10</sup> *Scherzer Rolling Lift Bridges*, 54-60; *The World’s Work*, Volume XXV, November 1912-April 1913, 801.

<sup>11</sup> J. A. L. Waddell, *Bridge Engineering*, 714.

<sup>12</sup> “Moveable Bridges,” p 90-91.

**B10. Significance (continued):**

eligible under Criterion 3. Similarly, trestle is one of many constructed during the twentieth century along this line utilizing standard plans, therefore it does not appear to meet Criterion 3.<sup>13</sup> Research for this project did not reveal that this railroad line has any associations with persons who gained prominence in their professions or made significant contributions in local, state, or national history. Therefore, this segment of NWP does not appear eligible under Criterion 2 (National Register Criterion B). Furthermore, built environments are rarely significant under Criterion 4 (National Register Criterion D) and this segment of rail line does not appear likely to yield important historical information. This property has been evaluated in accordance with Section 15064.5 (1)(2)-(3) of the CEQA Guidelines using the criteria outlined in Section 5024.1 of the California Resources Code.

**Photographs (continued)**



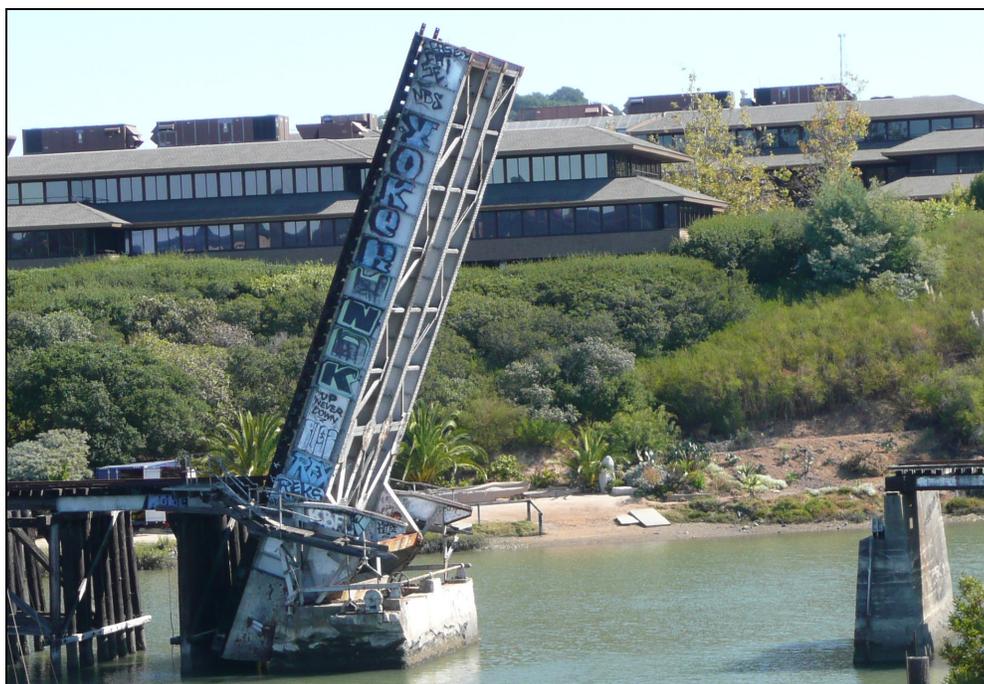
**Photograph 2:** View of trestle showing bascule bridge in background, camera facing south.

<sup>13</sup> Gregory King, "Evaluation of the Trestle over Sir Francis Drake Boulevard."  
DPR 523L (1/95)

**Photographs (continued)**

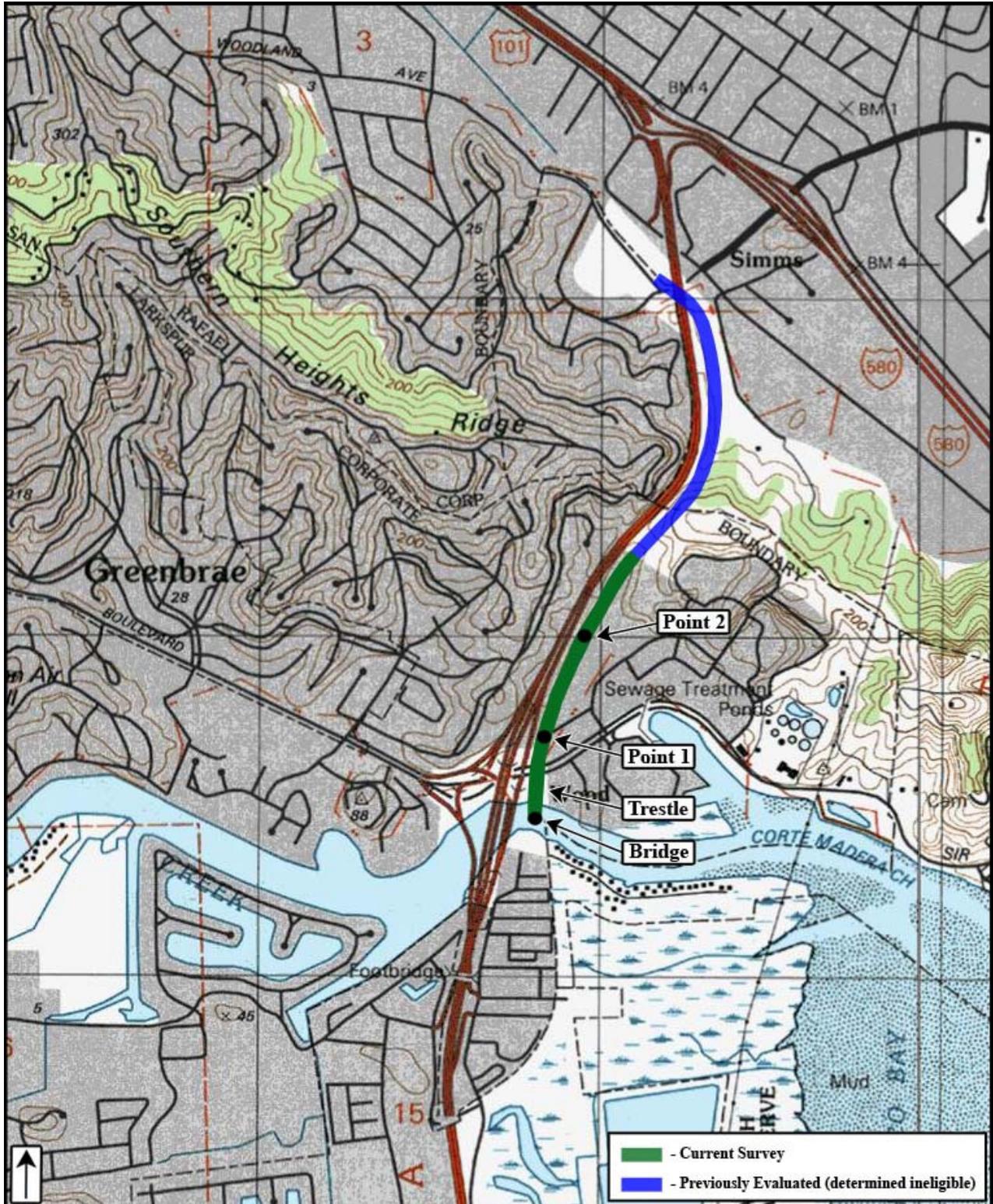


**Photograph 3:** View of trestle showing “X” braces, camera facing southwest.



**Photograph 4:** View of west side of bascule bridge, camera facing east-northeast.

**Sketch Map**



**L1. Historic and/or Common Name:** Northwestern Pacific Railroad

**L2a. Portion Described:**  Entire Resource Segment  Point Observation **Designation:** Point 1

**\*b. Location of point or segment:**

The recordation point is located immediately north of East Sir Francis Drake Boulevard and adjacent (east) to US 101.

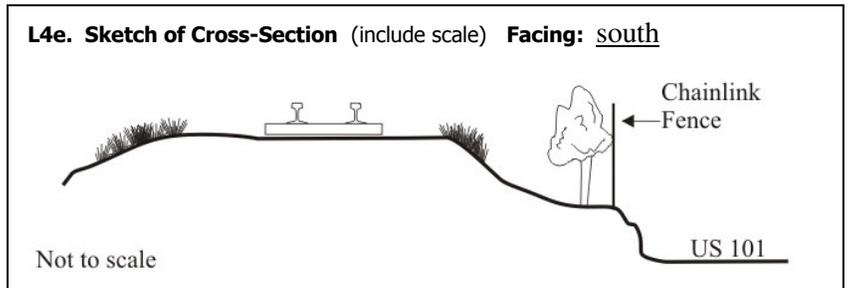
**L3. Description:**

At this recordation point, the abandoned railroad is a single track with pressure-treated wood ties raised approximately 15 feet above grade.

**L4. Dimensions:**

- a. **Top Width** approximately 12'
- b. **Bottom Width** n/a
- c. **Height or Depth** approximately 15'
- d. **Length of Segment** n/a

**L5. Associated Resources:** None



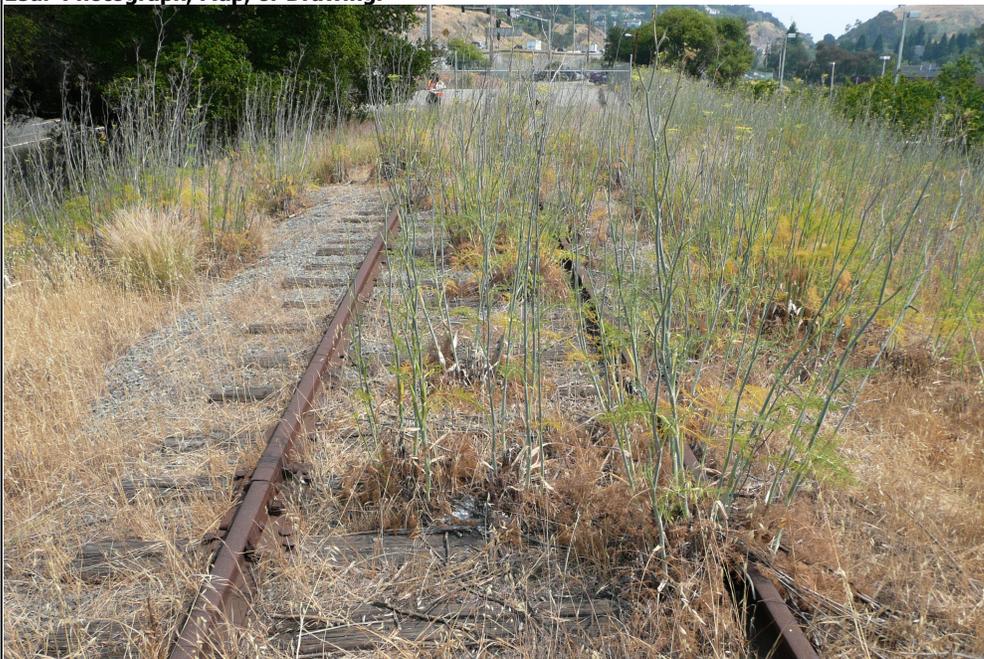
**L6. Setting:**

The setting at this point is marked by an onramp to US 101 immediately west and modern commercial buildings on parcels to the east.

**L7. Integrity Considerations:**

The historic integrity of the rail line at this point has been compromised by the removal of the trestle over Sir Francis Drake Boulevard, which was once attached to the tracks at this point, as well as the construction of a graveled parking lot (just north) within the railroad alignment, present-day US 101 to the west and modern office buildings to the east.

**L8a. Photograph, Map, or Drawing.**



**L8b. Description of Photo, Map, or Drawing:** View of tracks just north of Sir Francis Drake Boulevard, camera facing north.

**L9. Remarks:**

**L10. Form prepared by:**  
Toni Webb, JRP Historical Consulting, LLC 1490 Drew Ave, Suite 110, Davis, CA 95618

**L11. Date:** June 25, 2008

**L1. Historic and/or Common Name:** Northwestern Pacific Railroad

**L2a. Portion Described:**  Entire Resource Segment  Point Observation **Designation:** Point 2

**\*b. Location of point or segment:**

The recordation point is located approximately 1,100 feet north of East Sir Francis Drake Boulevard and adjacent (east) to US 101.

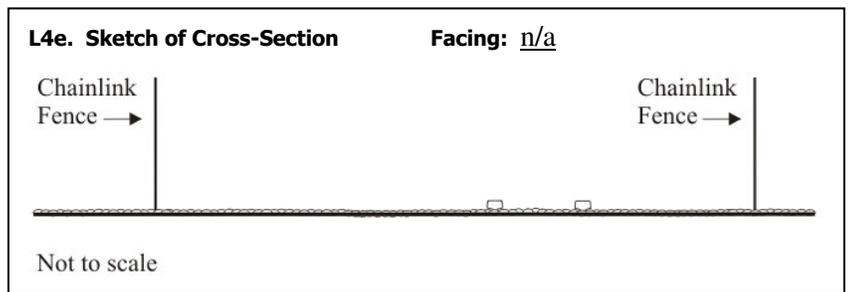
**L3. Description:**

At this recordation point, the abandoned railroad is a single track, at grade level with no timber ties. The former railroad right-of-way has been converted into a graveled parking lot and enclosed by a chain-link fence.

**L4. Dimensions:**

- e. **Top Width** approximately 58'
- f. **Bottom Width** n/a
- g. **Height or Depth** n/a
- h. **Length of Segment** n/a

**L5. Associated Resources:** None



**L6. Setting:**

The setting at this location is marked by US 101 elevated on plateau immediately west and vacant parcels to the east.

**L7. Integrity Considerations:** The rail line at this point does not appear to retain historic integrity because of the construction of a graveled parking lot within the railroad alignment. The parking lot (approximately 760 feet in length) has been partly enclosed by a modern chain-link fence and the tracks have been partially covered by gravel. No rail ties are evident.

**L8a. Photograph, Map, or Drawing.**



**L8b. Description of Photo, Map, or Drawing:** View of tracks at north end of parking lot, camera facing north.

**L9. Remarks:**

**L10. Form prepared by:**  
Toni Webb, JRP Historical Consulting, LLC 1490 Drew Ave, Suite 110, Davis, CA 95618

**L11. Date:** June 25, 2008



Central Marin Ferry Connection Project,  
Marin County, California

ARCHAEOLOGICAL SURVEY REPORT

Final – August 2009

TAM Project No.: C-FY05/06-007

Jacob Carter Burgess Agreement No.: 160577.012

SUBMITTED BY: Brian F. Byrd  
Dr. Brian F. Byrd, Far Western Project Manger

8/18/09  
Date

REVIEWED BY: Lauren Abom  
Lauren Abom  
Senior Environmental Planner

8/19/2009  
Date

APPROVED BY: Kai Chan  
Kai Chan, PE  
Transportation Program Manager

8/19/2009  
Date



## SUMMARY OF FINDINGS

Far Western Anthropological Research Group, Inc., on behalf of Jacobs and the Transportation Authority of Marin (TAM), conducted cultural resources investigations in support of Phase I of the Central Marin Ferry Connection (CMFC) Project near Sir Francis Drake Boulevard. Phase I of the CMFC project extends along the east side of US Highway 101 (US 101) from the north shore of Corte Madera Creek northward to approximately 0.7 kilometers north of Sir Francis Drake Boulevard. This project will require compliance with Section 106 of the National Historic Preservation Act (16 USC 470 et seq.) and the California Environmental Quality Act (CEQA; Public Resources Code Section 21000 et seq.) which mandates federal and California public agencies to consider the effects an undertaking may have on historic properties.

Native American consultations were conducted with the Native American Heritage Commission and the five individuals listed by the commission as interested parties. All six contacts on that list were sent letters requesting input on October 7, 2008. One response has been received to date; the Federate Indians of Graton Rancheria expressed their concern regarding the high potential for buried sites in the area and also requested nation to nation consultation. A pre-field literature search at the Northwest Information Center (Information Center) revealed no archaeological sites within the project Area of Potential Effects (APE).

All accessible portions of the 10.8-acre project APE were surveyed; this consisted of 10.3 acres or 95.3%. The project APE consists almost entirely of a narrow north-south trending corridor in an urbanized setting and runs along the abandoned Northwestern Pacific Railroad line. No prehistoric or historic-era archaeological sites were observed within the project APE during archaeological survey.

The potential for buried sites was analyzed and much of the APE is considered sensitive for buried sites. Extended Phase I archaeological testing is recommended within the Area of Direct Impact for the new Sir Francis Drake Boulevard overcrossing. Ideally this should entail backhoe trenching, supplemented by continuous-sample mechanical coring, if needed. Such an approach aids project planning and site avoidance, and reduces the likelihood of project delays if a resource is encountered during construction.

It is best to avoid cultural resources whenever possible. If previously unidentified cultural materials are unearthed during construction, work should be halted in that area until a qualified archaeologist can assess the significance of the find. If major adjustments are made to the final design an archaeologist should be consulted to determine the potential impacts to buried cultural resources. Additional archaeological survey will be needed if project limits are extended beyond the present survey limits.



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- Appendix B. Survey Coverage Table and Field Photos.
- Appendix C. Records Search Results (**Site Records are Confidential**).
- Appendix D. Project APE and Archaeological Survey Coverage Maps.

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## 1. INTRODUCTION

As part of the Greenbrae/Twin Cities Corridor Improvement Project (GCIP), the Transportation Authority of Marin (TAM) is proposing to the establishment of the Central Marin Ferry Connection (CMFC) near Sir Francis Drake Boulevard (SFDB) in the Corte Madera/Greenbrae area of Marin County, California (Figure 1). One aspect of the GCIP entails The CMFC project is divided into Phase I and Phase II, and extends a multi-use pathway for approximately 1.8 kilometers along the east side of US 101 from Wornum Drive on the south to approximately 0.7 kilometers north of SFDB (Figure 2). Currently, funding has been indentified only for Phase 1, and any studies needed for Phase 2 will be addressed once funding has been secured.

This project will require compliance with Section 106 of the National Historic Preservation Act (16 USC 470 et seq.) and the California Environmental Quality Act (CEQA; Public Resources Code Section 21000 et seq.) which mandates federal and California public agencies to consider the effects an undertaking may have on historic properties. Compliance with Section 106 is being carried out in accordance with the January 1, 2004 *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California*.

Far Western Anthropological Research Group, Inc. (Far Western), on behalf of Jacobs Carter Burgess and TAM, conducted a cultural resources investigation in support of Phase I of the CMFC project. Far Western conducted an archival records search; consultation with the Native American Heritage Commission and local Native Americans; and an intensive archaeological survey. The fieldwork consisted of a pedestrian survey of the proposed project alignment that was performed August 13-14, 2008, by project archaeologist Michael Darcangelo and field participant Ian Patrick, under the supervision of project director Dr. Brian Byrd. Dr. Byrd and Mr. Darcangelo have many years of experience in California archaeology, and both archaeologists exceed the required qualifications for cultural resources specialists, as defined by the US Department of the Interior. JRP Historical Consulting addresses historical architectural resources within the project vicinity in a separate report (Webb 2009).

## 2. PROJECT DESCRIPTION

The proposed Central Marin Ferry Connection project (CMFC or proposed project) is located in Larkspur adjacent to the SFDB and US 101 interchange (PM 14.7 to PM 15.3). The project's goal is to create a new multi-use pathway intended to further promote non-motorized commute alternatives and enhanced recreational travel. The pathway will be generally located within the Sonoma Marin Area Rail Transit (SMART) right-of-way and generally follows the County's north-south greenway. The proposed project is of vital importance to central Marin as it will provide safe, direct, and convenient pedestrian/bicycle access between local transit facilities such as the future SMART station and the existing Larkspur Ferry Terminal, as well as access to schools, business centers, and residential communities.

The Transportation Authority of Marin (TAM) is proposing to construct a new multi-use pathway intended to further promote non-motorized commute alternatives and enhanced recreational travel within the City of Larkspur in Marin County, California. TAM plans to construct the project in two phases. The pathway would generally follow the County's north-south greenway. Phase I of the proposed project, and the scope of this proposed project, would construct a multi-use pathway adjacent to the east side of US Highway 101 from post mile (PM) 14.7 to PM 15.3 that would include an overcrossing above East Sir Francis Drake Boulevard (SFDB) and connect to the existing multi-use pathway located south of SFDB. Phase I would connect to the southern limit of the Cal Park Hill Tunnel Rehabilitation and Path Project to the north, which is currently under construction. Phase II of the proposed project would extend the Phase I multi-use pathway to the south along the east side of US Highway 101 to Wornum Drive and include an overcrossing above Corte Madera Creek and provide access to the Greenbrae Boardwalk. Once completed, the entire Central Marin Ferry Connection



Figure 1. Project Location.



Figure 2. Detailed Project Map.

(CMFC) project (i.e., Phases I and II) would provide a continuous multi-use pathway from the Cal Park Hill Tunnel and the future Sonoma Marin Area Rail Transit (SMART) Larkspur Station in the north to Wornum Drive in the south.

Phases I and II of the proposed project have independent utility with respect to each other because each would serve their own purpose and would occur regardless of whether the other phase was to occur. The independent utility analysis does not include the Cal Park Hill Tunnel Rehabilitation and Path Project because it is under construction and constitutes an existing condition.

## **2.1 Project History**

The County of Marin identified the need to improve the US Highway 101 corridor from the Tamalpais Drive interchange in the Town of Corte Madera to the SFDB interchange in the City of Larkspur (i.e., Greenbrae Corridor) as early as 1999. The need for improving the corridor was recognized as a high priority at the regional planning level and in 2004, Regional Measure 2 was approved, which provided funds to further develop the improvements. In coordination with Caltrans, TAM engaged the public in a series of public workshops to identify public concerns and develop several alternatives using context sensitive design principles to integrate stakeholder input into the project development process. This included considering the physical setting as well as addressing community values as part of the public outreach process. In addition to identifying motorized transportation alternatives throughout the corridor, non-motorized commute alternatives for the US Highway 101/SFDB interchange were developed, which included the improvements described in this proposed CMFC Phase I project. The US Highway 101/SFDB interchange serves a critical role in the Marin County multimodal transportation network because it serves freeway and local traffic, access to cities east and west of US Highway 101, the Larkspur Ferry Terminal, the Marin Airporter, Larkspur Landing, and business and commercial developments along Corte Madera Creek.

## **2.2 Project Need**

Currently, north/south non-motorized travel is difficult at the US Highway 101/SFDB interchange because SFDB serves as a physical barrier between the Cal Park Hill Tunnel Rehabilitation and Path Project, located north of SFDB, and the multi-use pathway, located south of SFDB. Access to the multi-use pathway from the north side of SFDB requires travelers to cross the roadway at Larkspur Landing Circle, which is located approximately 800 feet to the east. Also, Corte Madera Creek and the adjacent salt marsh provide a unique habitat viewing area opportunity; however, access to points from which to view the creek and salt marsh are limited.

## **2.3 Project Purpose**

The purpose of this proposed project would be to improve public access and connectivity for non-motorized access by constructing a new SFDB overcrossing east of the US Highway 101/SFDB interchange. This proposed project would also improve the opportunities to observe the Corte Madera Creek salt marsh area, by constructing an elevated path along the north bank of Corte Madera Creek. This proposed project is of importance to central Marin County because it would provide safe, direct, and convenient non-motorized access between local transit facilities (i.e., future SMART station) and the existing Larkspur Ferry Terminal, as well as access to schools, business centers, and residential communities.

## **2.4 Phase I Project Description**

The proposed project would include the following construction activities for Phase I:

- Conduct a geotechnical survey
- Construct a new multi-use pathway that extends from the existing Cal Park Hill Tunnel Rehabilitation and Path Project to East SFDB
- Construct a new multi-use pathway overcrossing structure and approach ramps at East SFDB

- Construct a new access ramp from the sidewalk on the north side of East SFDB to the new overcrossing
- Construct an approach ramp for the multi-use path south of East SFDB with viewing areas above the salt marsh area and Corte Madera Creek
- Construct a new access ramp that conforms to the existing multi-use paths and repave the existing multi-use pathway south of East SFDB from the Highway 101 northbound off ramp structure to the Larkspur Ferry Terminal entrance
- Construct retaining walls at various locations along the multi-use path
- Construct new sidewalks, curbs, and gutters along East SFDB
- Install signage, striping, lighting, screening, handrails, fencing, landscaping, truncated domes and/or bollards
- Construct stormwater swales and detention basins
- Remove or retrofit all or a portion of the existing railroad trestle
- Relocate and protect existing utilities
- Construct temporary access areas within the salt marsh and Corte Madera Creek

## 2.5 Archaeological APE

The project Area of Potential Effects (APE) was defined by Jacobs Carter Burgess and TAM (Appendix D). It extends for approximately 0.9 kilometers along the east side of US 101 and includes 10.8 acres, two main areas south of Sir Francis Drake Boulevard, and a longer segment straddling the old railroad grade.

## 3. SOURCES CONSULTED

### 3.1 Records Search Results

On July 2, 2008, the Information Center at Sonoma State University, provided the record search results for a 0.4-kilometer (one-quarter-mile) radius around the Central Marin Ferry Connection Project corridor (Figure 3). This records search updated the October 4, 2006 records search for the initial project feasibility study (Byrd 2007). Two cultural resources and 20 studies were identified based on a review of the Information Center files and reports within the Far Western library (Appendix B). The studies include seven that fall within or intersect the project APE, and 13 that fall elsewhere within the records search area (Table 1). Most of the projects are surveys (n=13). Other projects consist of overviews/records searches (n=4), site-specific investigations (n=2), and an historic resource evaluation (n=1).

The two cultural resources are prehistoric shell midden sites (Table 2). Both sites lie north of Corte Madera Creek but neither falls within the project APE. Nelson (1907) recorded site MRN-78 as a shell mound within an orchard field along a small canyon. The site was 60 meters in diameter and, despite leveling for cultivation, was around one meter in height. Treganza (1957:24) excavated 8.5 cubic meters in the search for evidence of Drake's sixteenth-century landing. No results were reported except that the maximum depth of cultural material was 90 centimeters and no evidence of early European contact was recovered. Today this location west of the highway is within a residential housing development, and is largely, if not totally, destroyed (a note on the site form states "destroyed – T. Jackson").

In contrast, the Wood Island site was never formally documented with a site form. The only reference to the site is Jackson's (1976) reconnaissance report prior to development. Jackson (1976) observed remnants of shell midden amidst dense poison oak along the northeastern slope of the island as well as sporadically along the island top. No archaeological investigations were conducted at the site prior to construction of an office complex. The northern portion of the island lies between the two main segments of the APE immediately south of Sir Francis Drake Boulevard. As such, the portion of the site noted by Jackson (1976) on the northeast slope of the island is within 50 meters of the APE.

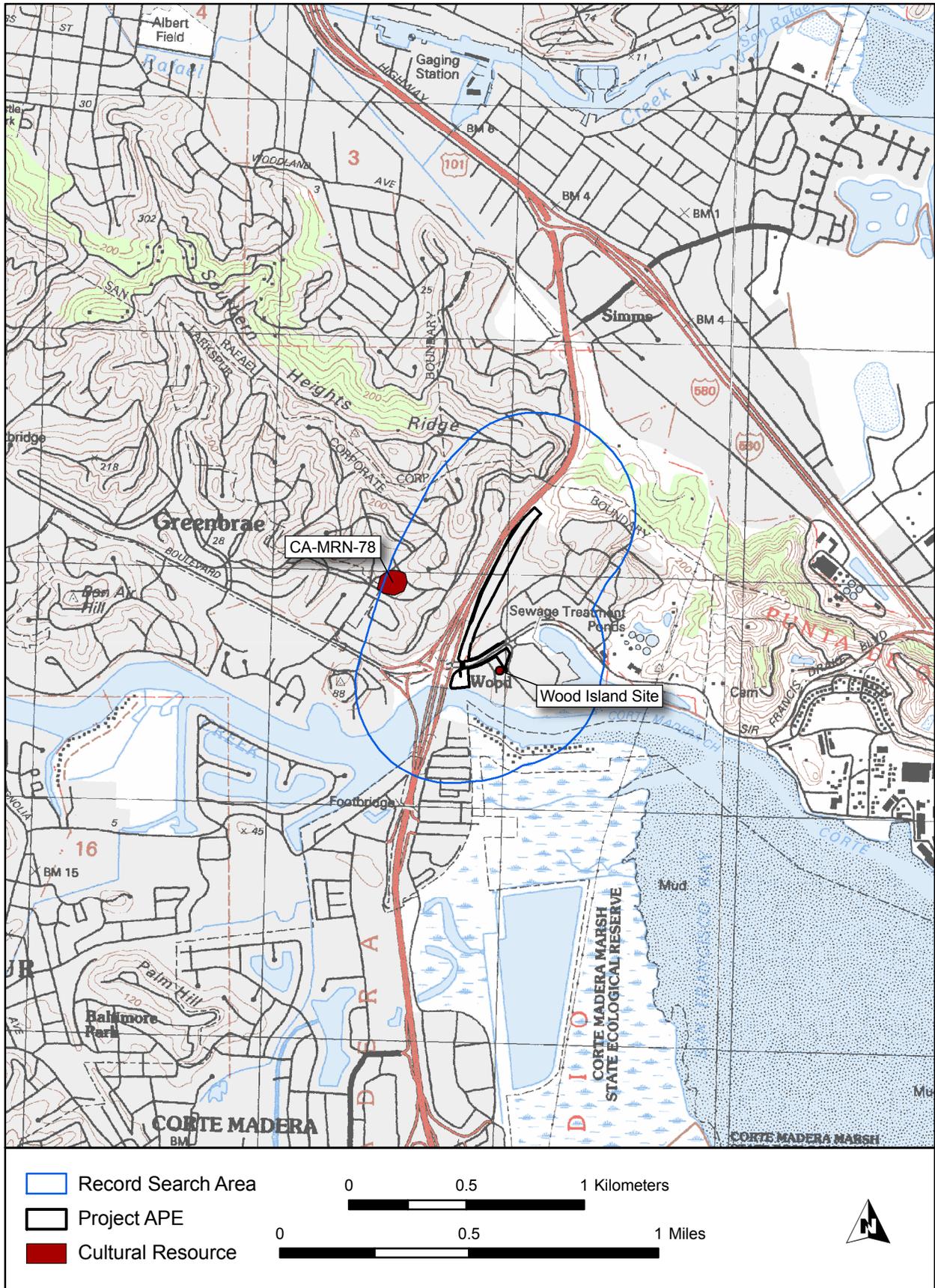


Figure 3. Records Search Results.

Table 1. Archaeological Investigations within the Project Records Search Area.

STUDY #	PROJECT TYPE	REFERENCE	TITLE (ALL ON FILE AT THE NORTHWEST INFORMATION CENTER)
<i>INTERSECT/ABUTS PROJECT APE</i>			
S-13217	Archaeological survey	Origer, T. M. 1991	An Archaeological Survey for the AT&T Fiber Optics Cable, San Francisco to Point Arena, California
S-14868	Archaeological survey	Roop, W. 1993	A Cultural Resources Evaluation of the Sir Francis Drake Boulevard Repaving and Drainage Improvement Project, Marin County, California
S-22086	Regional historic structure overview	Newland, M. 1999	Cultural Resource Record Search and Literature Review for Stations, Sidings and Bridges on the Northwestern Pacific Railroad, between Cloverdale and Larkspur, Sonoma and Marin Counties (letter report)
S-31737	Archaeological survey	Denardo, C. and D. Hart (2004)	Archaeological Resources Technical Report for the Sonoma Marin Rail Transit (SMART) Project, Sonoma and Marin Counties, California
S-31738	Architectural survey	Garcia and Associates (2004)	Historic Architectural Resources Technical Report for the Sonoma Marin Rail Transit (SMART) Project, Sonoma and Marin Counties, California
S-33646	Records/literature search	Byrd, B.F. (2007)	Transportation Authority of Marin, Highway 101 Greenbrae Corridor, Cultural Resources Feasibility Study
?	Archaeological survey	URS Corporation (2004)	Cal Park Hill Tunnel Rehabilitation and Pathway Design Project Archaeological Survey Report, DPD-EP-25 (Rev. 2/83).
<i>OUTSIDE PROJECT APE</i>			
S-01129	Archaeological survey	Gorrell, B. 1976	An Archaeological Survey of Land Proposed for the Construction of the Marin Mall Regional Shopping Center, Corte Madera, California.
S-01165	Archaeological survey	Desgrandchamp, C. and M. Clark 1978	Pipeline and Water Treatment Plant Facilities, Marin County.
S-06424	Archaeological survey	Desgrandchamp, C. and D. Chavez 1984	Archaeological Resources Evaluation for the Central Marin Sanitation Wastewater Transportation Facilities Improvement Project - Phase I, Marin County, California (EPA Project No. C-06-2467-21)
S-09907	Archaeological survey	Saltzman, T. M. 1988	Archaeological survey of Landmark Plaza (former Victoria Station Restaurant), 17 E. Sir Francis Drake Blvd., Larkspur, California (letter report)
S-10760	Archaeological survey	Jones, T. 1989	Archaeological Survey Report for the Marin HOV Gap Closure, City of San Rafael, Marin County, California, 04-MRN-101 8.4/12.7 4232-115750
S-12242	Site specific - reconnaissance	Jackson, T. L. 1976	A reconnaissance of the Wood Island archaeological site (letter report)
S-12945	Site specific investigation	Treganza, A. E. 1957	The Examination of Indian Shellmounds within San Francisco Bay with Reference to the Possible 1579 Landfall of Sir Francis Drake
S-16949	Archaeological survey	Roop, W. 1991	A Cultural Resources Evaluation of a Proposed Reclaimed Water Pipeline in the San Quentin Point, Corte Madera, Larkspur, Kentfield and San Rafael Areas
S-20256	Records/literature search	Dean, R. L. 1998	Prehistoric and Historic Context, Archaeological Report for the Ross Valley Marin Sanitary District Study Area, Larkspur, California
S-23745	Archaeological survey	Holson, J. 2001	Archaeological Survey for Lucky Drive Levee Project, Marin County, California (letter report)
S-29655	Regional overview, Site specific, Thesis	Rushing, B. J. 2004	A Contextual Analysis of PCN Petroglyphs in Marin and Southern Sonoma Counties
?	Archaeological survey	Dowdall and Thompson (1999)	First Addendum Positive Archaeological Survey Report for the Marin HOV Gap Closure, City of San Rafael, Marin County, California. 04-MRN-101, PM 8.4/12.7, EA 4232-115750
?	Historic resource evaluation	Carey and Co. Inc Architecture (2003)	Larkspur Rail Trestle, Larkspur, California Historic Resource Evaluation.

Table 2. Previously Recorded Archaeological Sites within the Project Records Search Area.

PRIMARY # (P-21)	TRINOMIAL (CA-MRN)	INTERSECTS PROJECT APE	ERA	RESOURCE	LAST UPDATE	NOTES
-000108	-78	No	P	Shell mound	1907	Nelson site no. 78; site presumably destroyed by residential housing
-	-	No	P	Shell midden	1976	Wood Island site. No site record form; only documentation in Jackson (1976)

### 3.2 Native American Consultation

Far Western contacted the Native American Heritage Commission on June 2, 2008, and requested that they conduct a search of their Sacred Lands file to determine if there were known cultural sites within or near the project area (Appendix A). A June 4, 2008, response from the Commission stated they had no record of Native American resources within or near the project APE. A list of interested Native American groups and individuals was also requested. All six contacts on that list were sent letters requesting input on October 7, 2008. One response has been received to date; the Federate Indians of Graton Rancheria expressed their concern regarding the high potential for buried sites in the area and also requested nation to nation consultation (Appendix A).

## 4. BACKGROUND

This section very briefly reviews the environmental, prehistoric, ethnographic, and historic-era contexts for the project APE.

### 4.1 Environmental Context

#### 4.1.1 Modern and Recent Setting

The project area is situated within the San Francisco Bay region, specifically on the Marin Peninsula of the North Bay. The project area straddles Corte Madera Creek at the northern edge of the valley floor. The southern portion, south of Corte Madera Creek, is low lying former marshlands, while the northern portion across Corte Madera Creek rises above the valley floor along San Clemente Peninsula ridge. The project area ranges in elevation from less than six meters above mean sea level (amsl) on the valley floor to around 60 meters amsl on San Clemente Ridge. This ridge extends eastward to ultimately form San Quentin Point. San Rafael Bay, situated on the north side of San Quentin Point, is the northernmost inlet of San Francisco Bay, and is separated from San Pablo Bay by the straights formed by San Pablo Point and Point San Pedro.

The project area climate is typically Mediterranean, with cool, wet winters, and warm, dry summers. The region has warmer temperatures than northern coastal regions and is relatively frost-free. The majority of rainfall occurs in December through March, decreasing from north to south. Along the immediate coast the climate is cool and without extreme fluctuation in temperature, although summer months are dry and warmer.

This region is typified by estuaries, coastal marshlands, and coastal prairie. San Francisco Bay, formed by rising sea levels at the end of the Pleistocene, is part of a large estuary that includes San Pablo and Suisun bays and the Carquinez Strait. The dominant vegetation along creek edges includes yellow willow (*Salix lasiandra*), arroyo willow (*Salix lasiolepis*), broadleaf cattail (*Typha latifolia*), common tule (*Scirpus acutus*), and California bulrush (*Scirpus californicus*). Pickleweed (*Salicornia virginica*), Pacific cordgrass (*Spartina foliosa*), and salt grass (*Distichlis spicata*) are common species in coastal salt marshes. Native grasses along the coastal prairie, such as Pacific reed grass (*Calamagrostis nutkaensis*), Pacific hairgrass (*Deschampsia holciformis*), and California bentgrass (*Agrostis californica*), are mixed with introduced species from Europe (Crampton 1974).

Based on the Bay Area EcoAtlas (2002), the project APE would have looked very different near the end of the eighteenth century than it does today (Figure 4). Two hundred years ago, much of the project APE would have been dominated by high-elevation tidal marsh, with the tidal flat lying more than a kilometer to the east. As one

extends back further in time, near-shore low-lying settings would have varied greatly due, in large part, to changes in sea level (Atwater et al. 1977; Malamud-Roam et al. 2007). Sea level rise (rapid at the end of the Pleistocene and Early Holocene and slowing in the middle of the Holocene—15,000-5,000 years ago) would have impacted sedimentation, shoreline erosion, the physiographic character of the terminal reaches of Corte Madera Creek.

Overall, Bay Area environments would have contained abundant edible resources, such as fish, shellfish, and large mammals, as well as a range of plant resources. Anadromous fish were available in the creeks that drained into the San Francisco Bay. Tule elk (*Cervus elaphus nannodes*), pronghorn (*Antilocapra americana*), and grizzly bear (*Ursus chelan*), native to the area, were hunted out by the 1900s, and most of the San Francisco Bay marshlands have since been destroyed by landfill projects and construction.

#### *4.1.2 Paleoenvironmental Reconstruction (by Jack Meyer and Jeffrey Rosenthal)*

This section describes the environmental history of the San Francisco Bay Area (Bay Area) and the potential relationships between environmental changes, human settlements, and the archaeological record (see also Meyer and Rosenthal 2007). The Bay Area has undergone a series of significant large-scale environmental changes since the late Pleistocene, when people may have first entered and inhabited the region. These changes included rising sea levels, widespread sediment deposition, and corresponding fluctuations in the distribution and availability of important natural resources. As a result, the archaeological record, and the potential for archaeological deposits in the project APE, is better understood when viewed within the history of Bay Area environmental and landscape changes.

During the last glacial maximum some 22,000 years ago, vast ice sheets covered the northern part of the continent, and the climate in central California was considerably cooler than at any time since then. At that time worldwide sea levels were at least 100 meters lower than today, and the California coastline was located some 25 to 50 kilometers west of its current position (Atwater et al. 1977; Bard et al. 1996; Helley et al. 1979). At that time, the combined runoff from the Sacramento and San Joaquin rivers merged to form the California River (Howard 1979), which passed through the Carquinez Strait and into the Franciscan Valley (Axelrod 1981), now occupied by San Francisco Bay. The smaller streams and rivers draining the South Bay also joined this massive drainage as it flowed west through the Golden Gate and across the continental shelf, where it eventually emptied into the Pacific Ocean near the modern-day Farallon Islands (Atwater et al. 1977; Axelrod 1981). Thus, instead of a “bay,” there was a broad inland valley that supported grassland and riparian communities.

As the continental ice sheets began to melt some 16,000 years ago, the world’s oceans rose rapidly, causing the Pacific shoreline to migrate eastward. For instance, between 13,500 and 11,000 cal BP, sea levels rose about 40 meters, at an astounding average rate of about 16 meters every 1,000 years (Bard et al. 1996). This dating coincides with the earliest known evidence for human occupation in the region. The sea continued to rise at an average rate of about 6.7 meters per 1,000 years between 11,000 and 9000 cal BP, submerging much of the continental shelf west of the project APE (Figure 5). Over the next 2,000 years (9000-7000 cal BP), sea level rose about ten meters at a more modest rate of roughly five meters per 1,000 years. Thus, there was a cumulative rise in sea level of approximately 70 meters during the latest Pleistocene and early Holocene. As the waters rose, freshwater marshes began to form and sediments carried by the California River accumulated on the floor of the Franciscan Valley marking the transition from valley to bay.

Between 7000 and 6000 cal BP, there was a dramatic decrease in the rate of sea level rise worldwide (Stanley and Warne 1994). During this time, the sea inundated the Franciscan Valley at a more gradual rate of about 1.3 meters every 1,000 years, for a total of 8.0 meters over the past 6,000 years. This allowed sedimentation to keep pace with inundation, which permitted the formation of extensive tidal marsh deposits during the middle Holocene (Atwater et al. 1979). As base levels rose, the lower reaches of the stream and river channels became choked with sediments that spilled onto the surface of existing fans and floodplains, forming large alluvial floodplains (Helley et al. 1979). As a result, bay and marsh deposits now cover many formerly stable Holocene-age land surfaces, such as those documented in core samples from beneath the Bay (Atwater et al. 1977:Plate 1; Lee and Praszker 1969:60-63; Louderback 1951:90; Story et al. 1966; Treasher 1963:Figure 5).

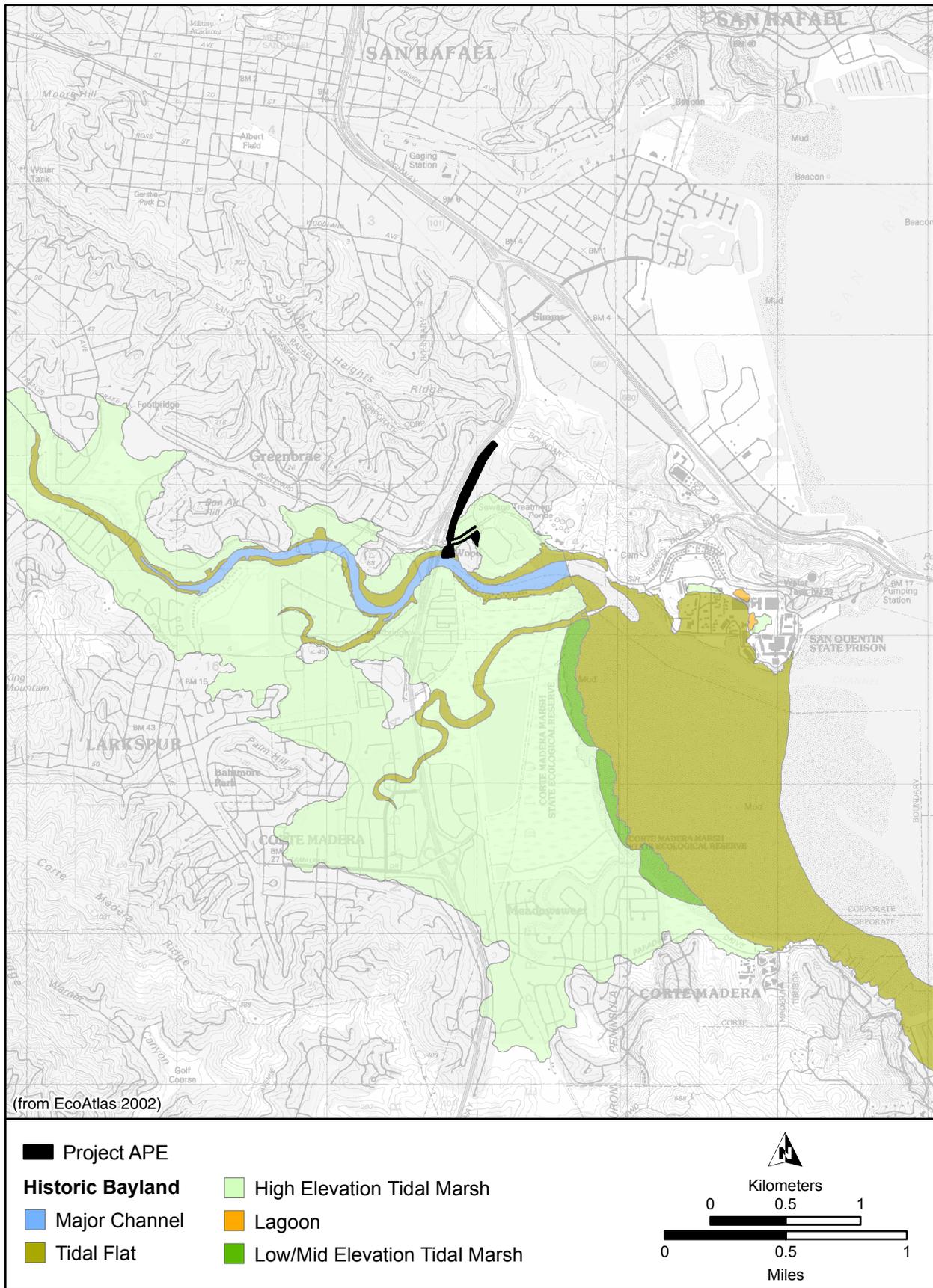


Figure 4. Historic Baylands and Associated Habitat circa AD 1800.

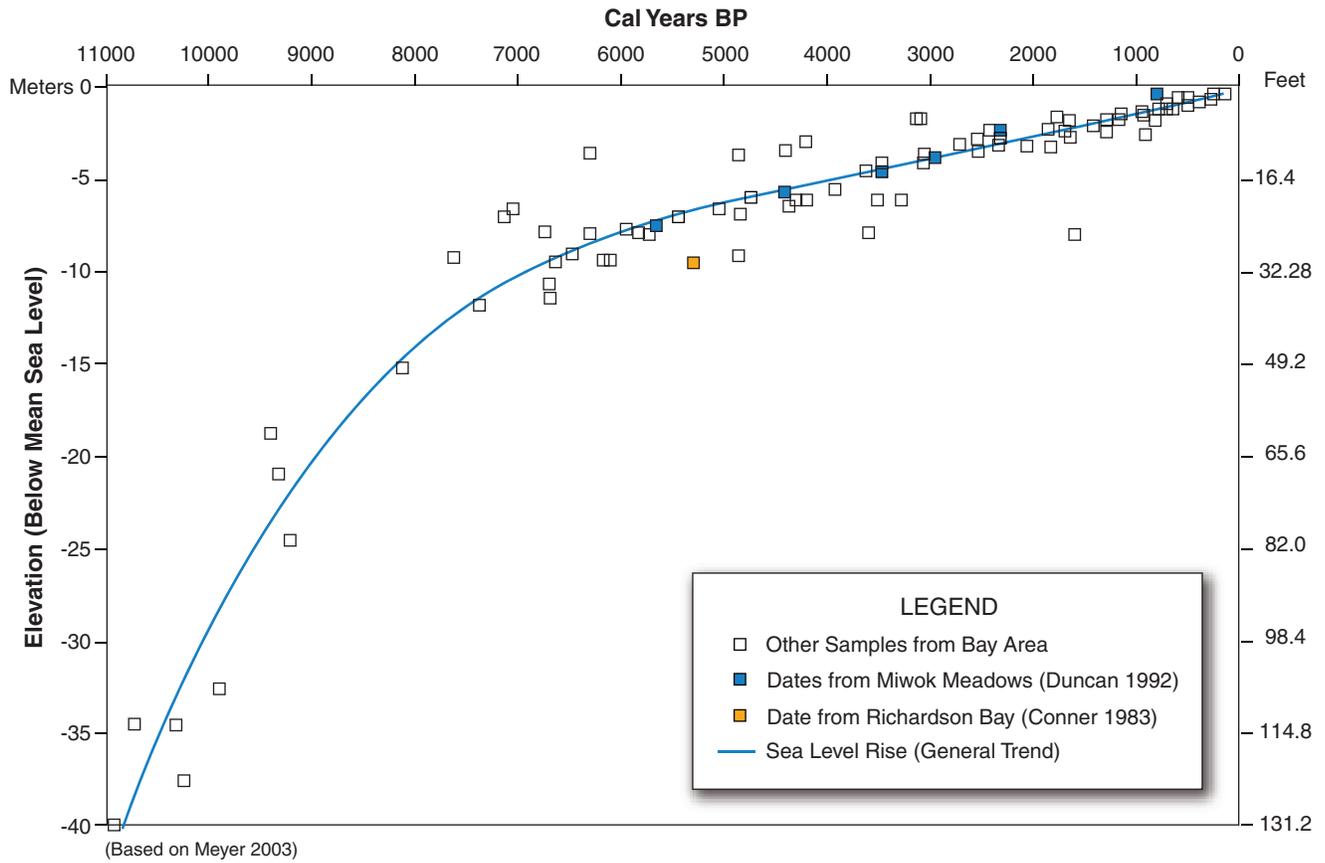


Figure 5. Age of Bay Area Holocene Deposits by Depth in Relation to Sea Level Changes.

Several studies confirm that many of the Late Pleistocene and Early Holocene land surfaces located around the Bay were overlain by deposits of younger alluvium that are generally less than 6,000 years old (Borchardt 1992; Gmoser et al. 1999; Helley et al. 1979; McIlroy et al., 2001; Meyer 2000; Stewart et al. 2002). Stratigraphic and radiocarbon evidence indicates that the Holocene-age alluvial deposits average two to three meters in thickness, with deposits exceeding ten meters in a few areas. These older land surfaces usually exhibit well-developed buried soils (paleosols) that represent a significant stratigraphic boundary in the region (Figure 6). As a result, older archaeological sites located in and around the Bay were submerged by sea level rise and/or buried by sediment deposition.

During the Late Holocene, the Bay grew in size as marshlands expanded in response to higher sea levels and the decomposition, compaction, and subsidence of intertidal deposits. These processes resulted in the formation of large tidal mudflats and peat marshes, which further promoted the deposition of sediment around the margins of the Bay. Radiocarbon dates from Palo Alto Marsh indicate that these deposits were generally formed during the past 2,000 years (Atwater et al. 1979:349). Dates of 1665 and 1520 cal BP have been obtained from layers of organic clay from marsh deposits buried at depths of 6.1 to 6.5 meters along lower Colma Creek near San Bruno (Price 1981).

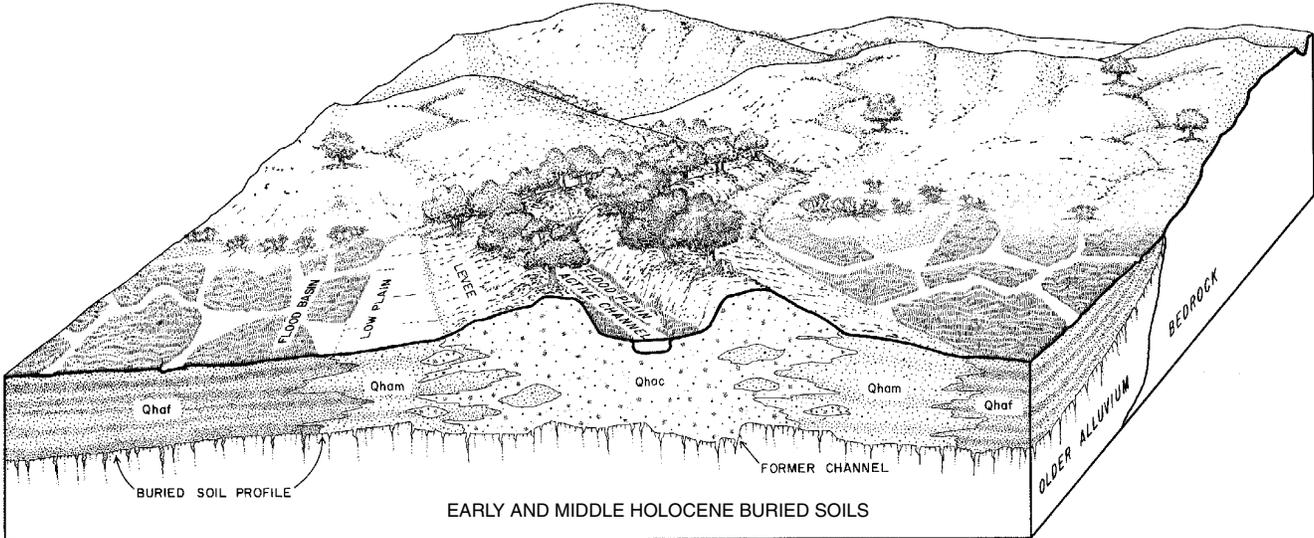
Isotopic analysis of shell suggests that salinity and discharge levels of the Bay have undergone substantial fluctuations over the past 6,000 years (Ingram and DePaolo 1993; Ingram et al., 1996; Wells 1995; Wells and Goman 1994). The mass extinction of large prehistoric oyster beds that flourished in southern San Francisco Bay between 1700 and 1850 cal BP indicates that significant changes did occur (Story et al. 1966). Given the potential influence of large-scale environmental changes on the distribution and abundance of certain plant and animal communities, it is likely that prehistoric human adaptive strategies also varied over time.

More recent changes on the San Francisco Peninsula include the appearance of introduced (non-native) plant species, which generally coincides with the arrival of the Spanish and other Euro-American settlers during the 1700s and 1800s (Reidy 2001; West 1989). An intense drought during the late 1800s reduced the vegetation cover and made the landscape susceptible to erosion (Burcham 1982:171), as did many of the activities associated with historic-period settlement. Hydraulic-mining activities in the Sierra Nevada increased the amount of sediment deposited within the Bay (Gilbert 1917). Lasting evidence of these changes is found in estuarine deposits and along many stream channels where the lowest terraces are often composed of historic-age sediments (Knudsen et al. 2000; Mudie and Byrne 1980). Finally, thick deposits of artificial fill were placed around the margins of the Bay to reclaim the marshes and wetlands for human development (Lee and Praszker 1969; Witter et al. 2006). While some archaeological resources may have been partially or completely destroyed by urban development, others were likely buried and protected by artificial fill deposited during the historical and modern eras.

This brief overview illustrates that large-scale environmental changes played a major role in the evolution of the Bay Area landscape over the past 22,000 years. Many of these changes undoubtedly affected the distribution of human populations and buried and/or submerged large segments of the landscape that were once available for human use and occupation, particularly those that are Middle Holocene-age and older (>7700 cal BP). Thus, the relatively incomplete nature of the Bay Area archaeological record is almost certainly related to the sequence of changes that led to the formation of the current landscape.

## 4.2 Prehistoric Context

The first intensive study of the Bay Area's prehistory was conducted by N. C. Nelson (1909) between 1906 and 1908. During his survey of the Bay Area's culturally formed earthworks, generally referred to as shell mounds or middens (i.e., shellfish refuse deposits), Nelson documented some of the most significant archaeological sites along California's central coast. More than 425 shell mounds, consisting of shells, ash, rocks, other cultural material, as well as burials, once existed around the margins of San Francisco Bay. Although most of the shell mounds have been destroyed by modern construction, leaving few visible remnants above ground, there is the potential for the basal remnants to be preserved. Research indicates that these can sometime lie several meters below current sea level and tend to contain a significant number of human burials.



(from Helley et al. 1979:Figure 19)

Figure 6. Schematic Cross-Section of Bay Area Landforms.

Excavations in the San Francisco Bay region were first undertaken in the early 1900s, mostly with the intent to discover the depth, composition, and contents of the mounds (Gifford 1916; Nelson 1910a; Schenk 1926; Uhle 1907). Subsequent research efforts attempted to build a larger central California regional cultural sequence based largely on changes in mortuary practices and artifacts associated with burials (Beardsley 1948; Heizer and Fenenga 1939; Lillard et al. 1939). Notably, Beardsley (1948) incorporated the Bay Area cultural sequence into the Central California Taxonomic System. Beardsley's system included three primary horizons—Early, Middle, and Late—defined largely on the basis of stylistic variation on artifacts through grave goods analysis. Revisions to the chronology have taken many forms over the years (see in particular Fredrickson [1974] and Wallace and Lathrap [1975]); however, three periods are generally recognized today, with transitions between each. Using Groza's (2002) Scheme D1 dating results, these periods are as follows: Early (3800-2450 cal BP), Early-Middle Transition (2450-2150 cal BP), Middle (2150-950 cal BP), Middle-Late Transition (950-675 cal BP), and Late (675-250 cal BP). Each of these periods can be subdivided further, largely based on the dating of specific types of shell beads. Notably, Late Period Phase 1 (675-450 cal BP) is generally distinguished from Late Period Phase 2 (450-250 cal BP).

The Early Period is characterized by the presence of large projectile points, millings, and a lack of high density shell deposits typical of later time periods, suggesting a focus on hunted and gathered foods (Lightfoot 1997; Moratto 1984:277). The Middle Period shows a shift in settlement and subsistence to a marine focus (i.e., bayshore and marsh habitats). An increase in acorn exploitation occurs at this time as well. This is also considered to be the heyday of mound building throughout San Francisco Bay (Lightfoot 1997). Hallmarks of the Late Period include the bow and arrow, harpoon, tubular tobacco pipe, clam disk beads, a greater emphasis on acorns, and extensive trade relations with neighboring groups (Lightfoot and Luby 2002; Moratto 1984:283).

This chronology is effectively a Late Holocene occupation sequence, although the Early Period occupation may have its origin near the end of the Middle Holocene (Lightfoot and Luby 2002). The use of a Late Holocene sequence is largely because the archaeology of the terminal Pleistocene, Early Holocene, and Middle Holocene is very rarely encountered in the San Francisco Bay Area. This dearth of earlier archaeology is the result of the loss of the coastal and bay margin surfaces dating from the terminal Pleistocene into the Middle Holocene due to sea-level rise and sedimentation that has deeply buried earlier archaeological sites. As a result, very little is known of San Francisco Bay Area archaeology prior to the Late Holocene. Two rare examples of Early Holocene occupation in the general region were from deeply buried contexts: one from the uplands of Mt. Diablo (Meyer and Rosenthal 1997) and one from the Metcalf Creek area of the southern Santa Clara Valley (Hildebrandt 1983). These Early Holocene excavations demonstrate that the general region was occupied prior to 4,500 years ago, but strong insight into the nature of early occupation trends will require much more data.

#### *4.2.1 Potential for Buried Sites (by Jack Meyer)*

One of the most difficult issues faced by archaeologists and cultural resource managers is the problem of locating sites that may be buried by natural deposition. This problem is further compounded in regions like the San Francisco Bay Area where archaeological sites may have been submerged by sea level rise or covered by urban development. The potential for buried archaeological sites is a practical problem for resource managers who must make a reasonable effort to identify archaeological deposits in a three-dimensional project APE, ensuring that potentially important resources are not affected by project activities. This can be a problem in any area where archaeological sites may have been buried or obscured by natural sediments or deposits of artificial fill. Early detection of buried archaeological deposits also avoids the potential for costly delays that may occur when unknown resources are discovered after project-related earth-moving activities have begun and late discovery protocols are necessary. Ultimately, the ability to locate buried sites depends on whether or not appropriate methods are used to explore sensitive landforms for evidence of past human activity.

Exploratory backhoe trenching has been used a number of times in attempts to discover or delimit buried archaeological sites, and more recently to identify buried soils and generally, to test and refine the South Bay Area geoarchaeological model proposed by Meyer (2000; see also Allen et al. 1999). While buried sites have sometimes been discovered using this approach (e.g., Baker 1996; Baker and Parsons 1996; Cartier et al. 1994, 1995), recent geoarchaeological studies aim to accomplish more than establishing simple site presence/absence, and attempt to provide useful information for reconstructing past landscapes on local and regional levels, reconstructing past

environmental conditions, and understanding the nature and completeness of the archaeological record (e.g., Gmoser et al. 1999; Meyer 2000; Meyer and York 2002; Rosenthal 2000; Rosenthal and Fitzgerald 2002; Rosenthal and Meyer 2004a, 2004b). Combined, they have afforded considerable evidence of the timing and nature of floodplain development in the Bay Area during the Latest Pleistocene and throughout the Holocene.

As noted in the *Paleoenvironmental Reconstruction* section on page 9, the Bay Area landscape is composed of different deposits, soils, and landforms that were formed at different times and/or by different processes. Soil formation is a by-product of sustained or prolonged land stability. The degree of soil formation is directly related to the amount of time a landform has been stable and subject to near-surface weathering processes. In this regard, landforms with well-developed soils have been stable and available for human use or occupation longer than those with weakly or moderately developed soils. Conversely, landscape instability is evidenced by erosional unconformities or by a lack of soil formation, which indicates relatively rapid deposition. Because soils are formed during sustained periods of land stability, archaeological materials are most often associated with developed soils, whether they are buried or at the surface. Since archaeological evidence of past human alteration or occupation of a landscape is subject to the same processes that affect the preservation, distribution, and visibility of geological deposits (Bettis 1992:119), the nature and timing of landscape evolution ultimately determines whether soils and archaeological remains will be buried, destroyed, or redeposited (Kuehn 1993; Waters 1992).

Most Pleistocene-age landforms have little potential to contain buried archaeological remains, because they formed prior to the arrival of humans in North America. Conversely, most Holocene-age landforms have some potential to contain buried remains, because they formed during or after people first occupied the region. The occurrence of buried soils in Holocene-age alluvial and colluvial landforms is significant because they represent formerly stable ground surfaces that were available for human use and occupation in the past. Regional evidence discussed in the previous section indicates a strong correlation between Holocene-age landforms, buried soils, and buried archaeological remains.

The discovery and analysis of buried archaeological sites, particularly those from early time periods, are crucial for archaeological inquiry, because without new or comparative data, important questions regarding chronology, settlement, and subsistence change cannot be properly addressed or answered, and many existing research questions cannot be confirmed, denied, or refined beyond our present understanding of them. It is critical that a reasonable and good-faith effort be made to identify archaeological resources that may lie buried beneath the Holocene-age depositional landforms that surround the Bay.

The magnitude and nature of geomorphologic change in the recent past make it difficult to determine precisely where prehistoric sites are buried, and influence the archaeological methods capable of identifying those locations. Of greatest consequence to archaeology are three regional periods of prolonged landform stability and soil development: the first during the Early Holocene (ca. 10,500 to 7000 cal BP), the second during the Middle Holocene (ca. 6500 to 4000 cal BP), and the third in the Late Holocene (<2800 BP; Meyer 2000:Figure 17; Rosenthal and Meyer 2004a:29). Each of these stable periods was followed by an episode of alluvial deposition, including several localized intervals of levee and floodplain building during the Late Holocene and historic period (Meyer 2000:43; Rosenthal and Meyer 2004a:28-29, 2004b). Thus, many prehistoric sites associated with formerly stable land surfaces have been buried by sediment deposition in the valleys of the Bay Area. For example, in the northern Santa Clara Valley more than 60% of the recorded archaeological sites occur in buried contexts (Meyer 1999).

### 4.3 Ethnographic Context

The project areas fall within aboriginal territory of the Coast Miwok (Barrett 1908; Goerke 2007; Kelly 1978; Kroeber 1925:272-278). Centered in Marin County, the Coast Miwok spoke one of the California Penutian languages, and were closely related linguistically to the nearby Lake Miwok. Prior to European contact, the native people of the Bay Area were hunters and gatherers. Subsistence activities centered around the seasonal availability of gathered resources such as acorn, nuts, seeds, greens and bulbs; hunting deer, pronghorn, tule elk, smaller animals, sea mammals and waterfowl; fishing; and collecting shellfish (oysters, mussels, and abalone). The proliferation of shell middens throughout the Bay Area attests to the heavy reliance on marine food resources.

The settlement system consisted of a primary village located along a principal stream, with satellite communities or special-use sites, usually seasonally occupied, in the surrounding countryside. The project APE appears to include lands of one Coast Miwok tribelet: the *Huimen* who were focused in the Richardson Bay area but also occupied the Corte Madera Creek area (Kelly 1978:415; Milliken 1988:1719). The adjacent *Aguastos* tribelet (also referred to as the *Awani-wi* and the *Tamal-Aguasto*) occupied the San Rafael Creek area to the north). In Milliken's (2006:27) most recent study of North Bay Native groups of the Mission Period, the boundary between the *Huimen* and the *Aguastos* is clearly placed along San Quentin Peninsula. Both the *Huimen* and *Aguastos* had high population densities of 8.06 per square mile and 5.09 per square mile, respectively, based on Mission records. The *Huimen* were first enrolled in 1783, while the *Aguastos* followed starting in 1795. A total of 163 *Huimen* were baptized in the missions from prior to 1794 to 1814, while 288 *Aguastos* were baptized between 1794 and 1821 (Milliken 2006:33). Beyond Mission record data, very little is known of these two tribelet/multi-family political groups.

In general, Coast Miwok domestic structures were conical in shape with a central hearth, built of perishable wood, grass, rushes and tule around a frame fashioned of two forked poles. It is uncertain whether they were built above or below ground (Kelly 1978:417; Kroeber 1925:276 quoting Drake). The buildings were the residences of nuclear families and typically contained approximately six to ten inhabitants (Cook and Heizer 1968:91). At larger settlements, two special-function buildings: a sweathouse and ceremonial building were often present. The sweathouse was "circular, dug four or five feet into the ground" (Kelly 1978:417). Superstructure construction included a central post and a series of smaller posts set around the basal margins of the pit. Primary roofing beams were set on the forked tops of the perimeter posts and the central post. These beams, flush with the exterior surface, were then covered sequentially with secondary sticks, brush, grass and earth. "The entrance was gallery-like, with a drop" (Kelly 1978:417). Sweathouses were considered the domain of men. Ceremonial buildings, often referred to as dance houses, were larger (around 4.5 meters in diameter) and shallower (0.6 meters) than sweathouses but similar in construction style. Their use was restricted to members of secret societies; male and female gathering took place in the main building, while female-only meetings took place in an adjacent, smaller structure that lacked an earth covering.

#### 4.4 Historic-Era Context

The historic-era began with early contact between the Coast Miwok and sea-going Europeans. This included landings by Francis Drake in 1579 and Sebastian Rodriguez Cermeño in 1595. These explorers were the first to document the activities of native Coast Miwok inhabitants.

Spanish policy throughout the late 1700s and early 1800s was directed toward establishing missions, presidios, and secular towns known as pueblos, with all land being held by Spain. Several missions were established in the Bay Area, most notably Mission San Francisco de Asis in 1776 (Beck and Haase 1974). In addition, the Russians established a trading colony at Fort Ross near Bodega Bay along the coast of Sonoma County in 1811. Subsequently, the Spanish established the Mission San Rafael in 1817 directly to the northwest of the project APE. With the founding of the missions, agriculture was introduced in the form of gardens, orchards, grain fields, and pastures for mission livestock, with native inhabitants enlisted as laborers. Spanish occupation of Alta California was the driving force behind tribal disintegration, with native people leaving their villages for the missions, where padres controlled their daily lifestyles, working, eating, praying, and other religious expression.

The Spanish Period in this area lasted until 1821, when the Mexican government gained control over Alta California. Following secularization of the missions by the Mexican government in 1822, land formerly held by Spain was divided into vast tracts owned by individuals. These "ranchos" granted by the government were used primarily for farming and raising cattle. Now many of the native people who had been laboring at the mission gardens and orchards moved to the ranchos, still working as manual laborers, and mixing with other tribes. The southern portion of the project APE in the Corte Madera valley became part of the first land grant in Marin County, *Rancho Corte Madera del Presidio*, in 1834. The land grant, some 5,000 acres, was awarded to John Reed by Governor Figueroa. He built a saw mill to provide wood to the San Francisco Presidio and ultimately moved to Mill Valley and pursued farming and ranching. Subsequently in 1840, the northern portion of the project

APE, defined largely by San Quentin Peninsula, became part of the extensive *Rancho Punta de Quentin Corte Madera, la Laguna y Canada de San Anselmo*. This land grant was awarded to John Bautista Roger Cooper and the land was initially used for cattle ranching.

Agriculture continued to be the major economic pursuit with the onset of the American Period (ca. 1846), in particular to supply the gold mines from 1848 and into the 1850s (for a more detailed discussion of subsequent developments see Webb [2009]). In the 1850s, land grants were subdivided for towns and eventually, in the 1860s, for the railroad right-of-way. The town of San Rafael was laid out in 1848 and began to flourish after the establishment of ferry service from San Quentin Landing to San Francisco in 1855. The nearby town of Corte Madera was incorporated in 1916. Establishment of railroads expanded the agricultural life of California and led to more innovative ways of shipping and preserving food supplies, such as transporting fruit and meat in refrigerator cars developed in 1880. Various railroad companies operated the rail line and trestle that runs through a portion of the current project APE. The most recent incarnation was termed the Northwestern Pacific Railroad which stopped service in 1972 (Webb 2009). Subsequently, the right-of-way came under public jurisdiction.

#### 4.5 Archaeological Research in Eastern Marin County

Nelson's (1909:Map 1) survey of the entire San Francisco Bay Area documented almost half of the shell mounds (~200) in the eastern portion of Marin County, clustered next to the bay and slightly upstream along drainages. As part of the pioneering efforts to understand the nature and history of Bay Area shell mound occupation, Nelson (1910b, 1910c, 1911) excavated, in quick succession, three sites in the northeast portion of the Bay—the Sausalito Mound (MRN-3), the San Rafael Foster Mound (MRN-315), and the Greenbrae Mound (MRN-76; Table 3, Figure 7). At each site, long trenches were excavated to unravel the stratigraphic sequence and understand site function and formation process. Although the data from these three sites were never written up and published in monographs, they were used in subsequent analytical studies. Gifford (1916) used column samples from these sites to examine ecofactual and inorganic mound constituents and explore non-spatial and temporal trends in the Bay Area, while Kroeber (1925:920-930) did a similar comparison using the artifact assemblages.

Table 3. Major Excavations in Eastern Marin County.

SITE (CA-MRN)	REFERENCE	DESCRIPTION	DATES*
-003	Nelson (1910b)	Sausalito Mound excavations; Middle and Late Period?	No
-007 (-471)	Jackson (1974)	San Jose village site in Novato; Late Period II	Yes
-014	Moratto et al. (1974); Riley (1979)	Shelter Hill site, Mill Valley area; Middle Period	Yes
-017	Pahl (2003)	De Silva Island; Middle Holocene	Yes
-020	McGeen and Mueller (1955)	Strawberry Point site; shore of Richardson Bay; excellent faunal data (e.g., Follett 1957, 1974); rich burial assemblage; post-Middle Period	No
-027	King (1970)	Tiburon site; Middle Period	Yes
-076	Nelson (1911)	Greenbrae site; Middle and Late Period?	No
-115	Meighan (1953)	Thomas site; north of San Rafael. Contains Late Period housepits and basketry (Baumhoff 1953)	Yes
-138	Slaymaker (1972, 1982)	Miller Creek site with ceremonial structure, multi-period; also excavated at nearby MRN-139-142 and -403 in Lucas Valley	Yes
-152	Clelow and Wells (1981); Goerke and Cowen (1983)	Pacheco midden site; Early Period	Yes
-170	Chavez (1976)	Ignacio site; stratified midden; Middle and Late Period	Yes
-193	Treganza (1958); Slaymaker (1974)	Olompali site north of Novato; previously excavated by Treganza; largest coastal site in region; includes cremations and burials; Late-Contact Period	Yes
-254	Bieling, D. G. (1998)	Mound in San Rafael; Middle Period	Yes
-255/H	Bieling, D. G. (2000)	Site adjacent to records search area; Middle Period	Yes
-315	Nelson (1910c)	Foster Mound in San Rafael; Nelson site 86c; Middle and Late Period?	No
-611	Luby (1994)	East Marin Island site; Middle Period specialized site?	No

Notes: \* See Figure 8.



Figure 7. Prominent Prehistoric Sites in Eastern Marin County.

This early interest in site formation and site structure was then replaced by chronology building within a cultural-historical framework. Notably, Beardsley (1948) used the data from the Greenbrae and San Rafael mounds in his synthesis of central California regional cultural sequences. Beardsley (1954:96) argued for Middle and Late Period occupation of these two mounds based largely on artifacts associated with burials; as such he assigned each site as having an initial Ellis Landing facies followed by an Emeryville facies (facies representing distinctive cultural units within a region). This emphasis on cultural-historical classification continues to play a fundamental role in structuring how researchers examine the local archaeological record (see critique in Moratto et al. 1974:56), and how they conduct field study methods, which has shifted away from trenching to grid unit excavation, also placed strictures on research orientation.

After World War II, numerous excavation projects were undertaken in Marin County (Moratto 1984:233-237, 269-276; Moratto et al. 1974; Slaymaker 1982:75-111). Initially, research was largely concerned with identifying the location of Sir Francis Drake's initial landing (Moratto et al. 1974:55; Slaymaker 1982). As such, fieldwork focused on Drakes Bay/Point Reyes and nearby coastal settings at the expense of eastern Marin. A notable exception was Meighan's (1953) excavations at the 18-foot-high Thomas site in the East Bay (McGeein and Mueller 1955; Treganza 1957, 1958, 1966). Meighan (1953) excavated one of the dozen house pits visible on the surface, exposing a well-preserved, burned structure with remnants of coiled and twined baskets (Baumhoff 1953). Unfortunately, this rare opportunity to explore intra-site spatial patterns and household organization was not capitalized upon and no further work was carried out at the site.

Cultural resource management-driven excavation projects dominated Marin County fieldwork from the late 1960s onward. King's (1970, 1974) excavations at MRN-27, a small shell midden on the Tiburon Peninsula, is one of the earliest and perhaps the best known of these studies. Rather than producing a traditional site report and focusing on cultural taxonomy questions, King (1970) instead explored social status through spatial analysis of mortuary data from 49 burials. A detailed argument was constructed that asserted the presence of a ranked society and elites at this Middle Period settlement, with commoners residing at the adjacent and larger site of MRN-26. This rare processual approach to Bay Area archaeology has profoundly impacted perspectives on the nature of social complexity throughout coastal California (e.g., Gamble et al. 2001; King 1990).

For the most part, the archaeology of eastern Marin County has continued to be explored on a piecemeal, site-by-site basis (see Table 3), building a relatively robust archaeological database that includes a burgeoning suite of radiocarbon dates largely clustered in the Late Holocene (Figure 8). Studies of local settlement patterns remain infrequent (cf. Slaymaker 1982; Van Dyke 1972), and Marin County data are rarely considered in recent discussions of the social function of Bay Area mound space (Lightfoot 1997; Lightfoot and Luby 2002; Luby 2004; Luby and Gruber 1999). In addition, recent use of behavioral ecology models, notably exploring foraging efficiency and resource depression, in Bay Area archaeology (e.g., Broughton 1994, 1997, 2002; Broughton et al. 2007) have yet to be applied to the Marin area (yet see discussion in Norton 2007). As such, the richness and potential of the eastern Marin archaeological record, so clearly documented by Nelson's survey (1907), has yet to be realized and its role in shaping our understanding of Bay Area prehistory has declined over time (e.g., Milliken et al. 2007).

## 5. FIELD METHODS AND CONDITIONS

The project APE covers approximately 10.8 acres (Appendix D). It consists, almost entirely of a narrow north-south trending corridor, varying in width from 40 to 50 meters, mostly running along the abandoned Northwestern Pacific Railroad line. The right-of-way largely consists of the railroad itself, along with narrow areas between the edge of the railroad and adjacent commercial property on the east and the edge of the highway pavement and a right-of-way fence of US 101 on the west. The project APE also includes two small, undeveloped parcels located immediately south of Sir Francis Drake Boulevard.

All accessible portions of the project APE were surveyed; this consisted of 10.3 acres or 95.3% of the project APE (Appendix D). A two-person crew surveyed the project APE using 3-meter transect intervals, and inspected all exposed cut banks. Unsurveyed areas were limited mainly to active roads and a small portion of

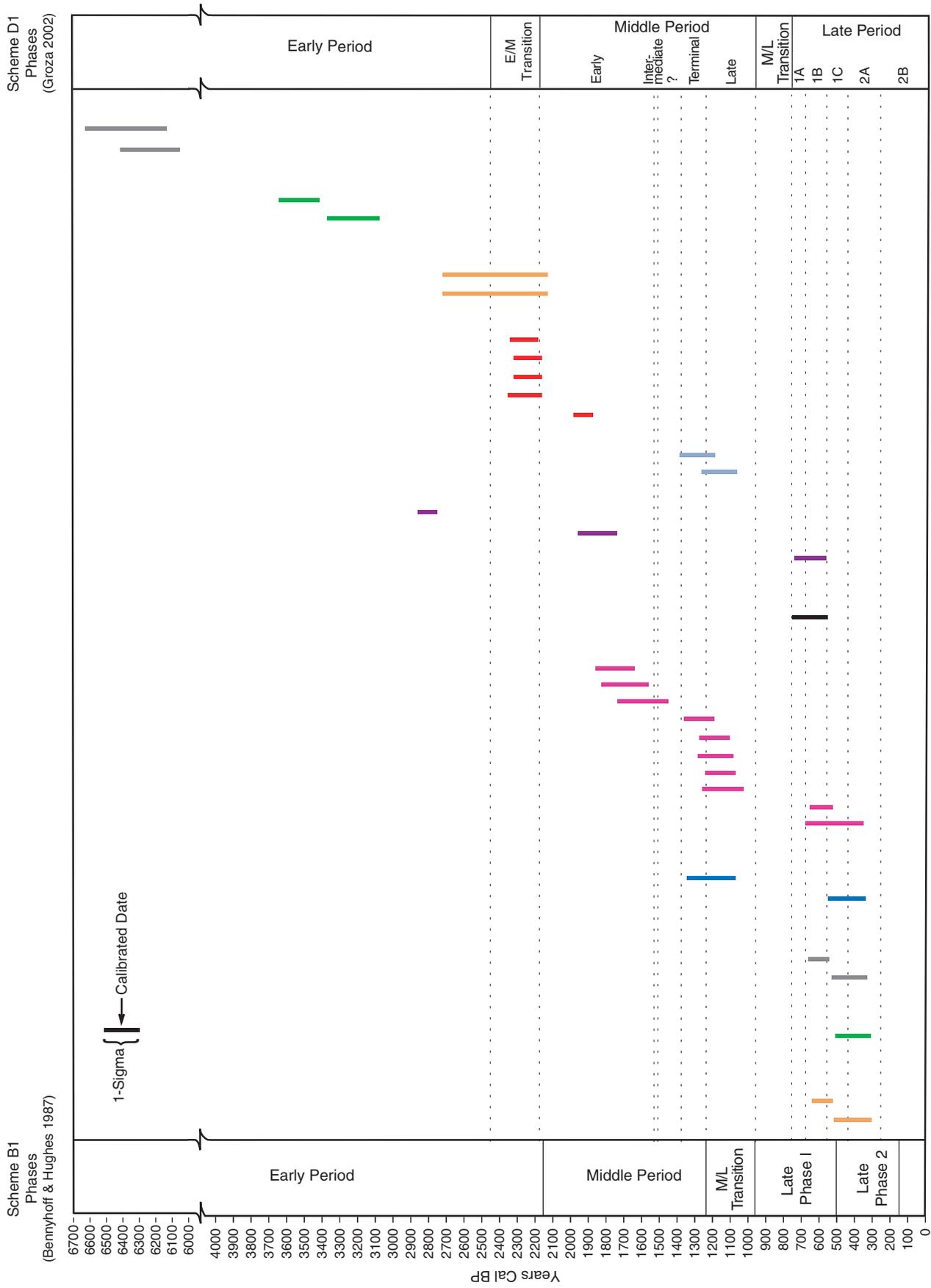


Figure 8. Radiocarbon Dates from Prominent Prehistoric Sites in Eastern Marin County.

Sir Francis Drake Boulevard. In general, the project APE has been extensively modified by construction of the railroad, US 101, and adjacent commercial development. Overall, ground visibility was low, with the ground surface varying from recently disturbed areas (with excellent visibility) to areas consisting largely of pavement and concrete (all with poor visibility). The railroad alignment also had poor ground visibility, typically covered with either ballast or road base, and dense vegetation. Appendix B provides photo documentation of the survey area.

Notably, extensive construction, including removal of bedrock, was conducted for the railroad alignment leading to the railroad tunnel on Cal Park Hill located north of E. Sir Francis Drake Boulevard. At a maximum, the railroad bed has been cut at least 6 meters below the original ground surface and since its abandonment this area has not been maintained (Figure 9a). Originally, much of the northern half of this corridor had bedrock on the surface. The railroad tracks have been left in place and road base has been brought in to create a parking lot at the southern end of the northern portion of the project APE (Figure 9b).

The small parcel south of Sir Frances Drake and northeast of Wood Island was under construction at the time the survey was conducted. Vegetation had been removed and there were open trenches that survey personal examined. Trench profiles consist of a shallow layer of fill on top of Bay Shore deposits.

The small parcel west of Wood Island and adjacent to US 101 is more varied in character. The northwestern portion appears to be comprised of imported fill (see Figure 9c). The rest of the parcel is much lower in elevation, comprised of marshlands along the edge of Corte Madera Creek that is inundated during high tide. A remnant of a wooden rail trestle and a wooden walkway are also present on the parcel.

In general, the project APE is very narrow and runs through an abandoned railroad alignment, creating a heavily modified study corridor. Dense vegetation or artificial surfaces (typically roads or artificial fill) covered portions of the survey area. The major exception was northeast of Wood Island where trench profiles revealed Bay Shore deposits covered with imported fill dirt.

## 6. STUDY FINDINGS AND CONCLUSIONS

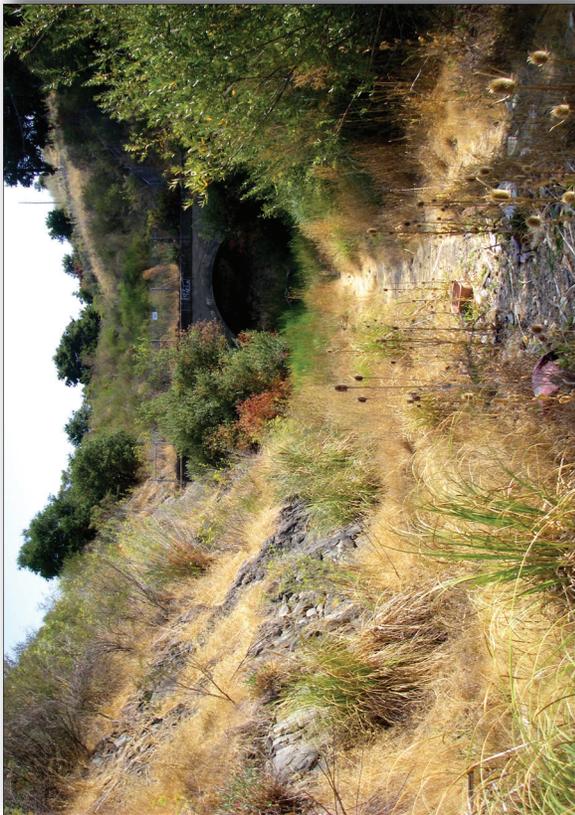
The following section discusses the survey results, and an assessment of the potential for buried archaeological sites to be encountered within the Project APE.

### 6.1 Pedestrian Survey

In general, the project APE is very narrow and runs through an area that has been heavily developed. Artificial surfaces (notably a road and a railroad bed) characterized much of the survey area. No cultural resources were encountered during the survey. No indications of the Wood Island shell midden (Jackson 1976) were observed despite the current project's proximity to this unrecorded resource.

### 6.2 Buried Sites Potential

As discussed previously, much of the Bay Area archaeological record is either buried by natural deposition, submerged by sea-level rise, or covered by urban development. Overlying the project APE onto the Quaternary geology map provides a basis for assessing the potential for encountering buried archaeological deposits (Knudsen et al. 2000; Witter et al. 2006). This surficial mapping was created at a 1:24,000 scale and was based partly on prior soil survey mapping, stereoscopic aerial photography, and limited field reconnaissance. The maps indicate that the project APE is classified as 22% Holocene Bay Mud, 39% bedrock, and 39% Holocene alluvium (Figure 10). These results are consistent with general geomorphologic patterns in Marin County, where Holocene-age landforms tend to be located within and adjacent to valley floors. Holocene Bay Mud distribution also corresponds to the extent of early nineteenth-century tidal marshlands (see Figure 4). This unit also falls within Meyer and Rosenthal's (2007:21) Bay Area Estuarine Deposits and Submerged Landforms category. Composed of peat, clay, silt and fine sand, this unit was formed by rising sea levels, particularly during the latter portion of the Holocene. There is considerable evidence that the Bay Mud estuarine deposits overlie buried archaeological deposits that extend below modern sea level (Henn et al. 1972; Leventhal et al. 1987; Meyer and



a) Abandoned railroad bed (looking north) ▲



b) Parking area along abandoned railroad bed (looking south) ▲



c) Parcel with artificial fill (looking south) ▼

Figure 9. Selected Photos of Project Area. (see Appendix B for details.)

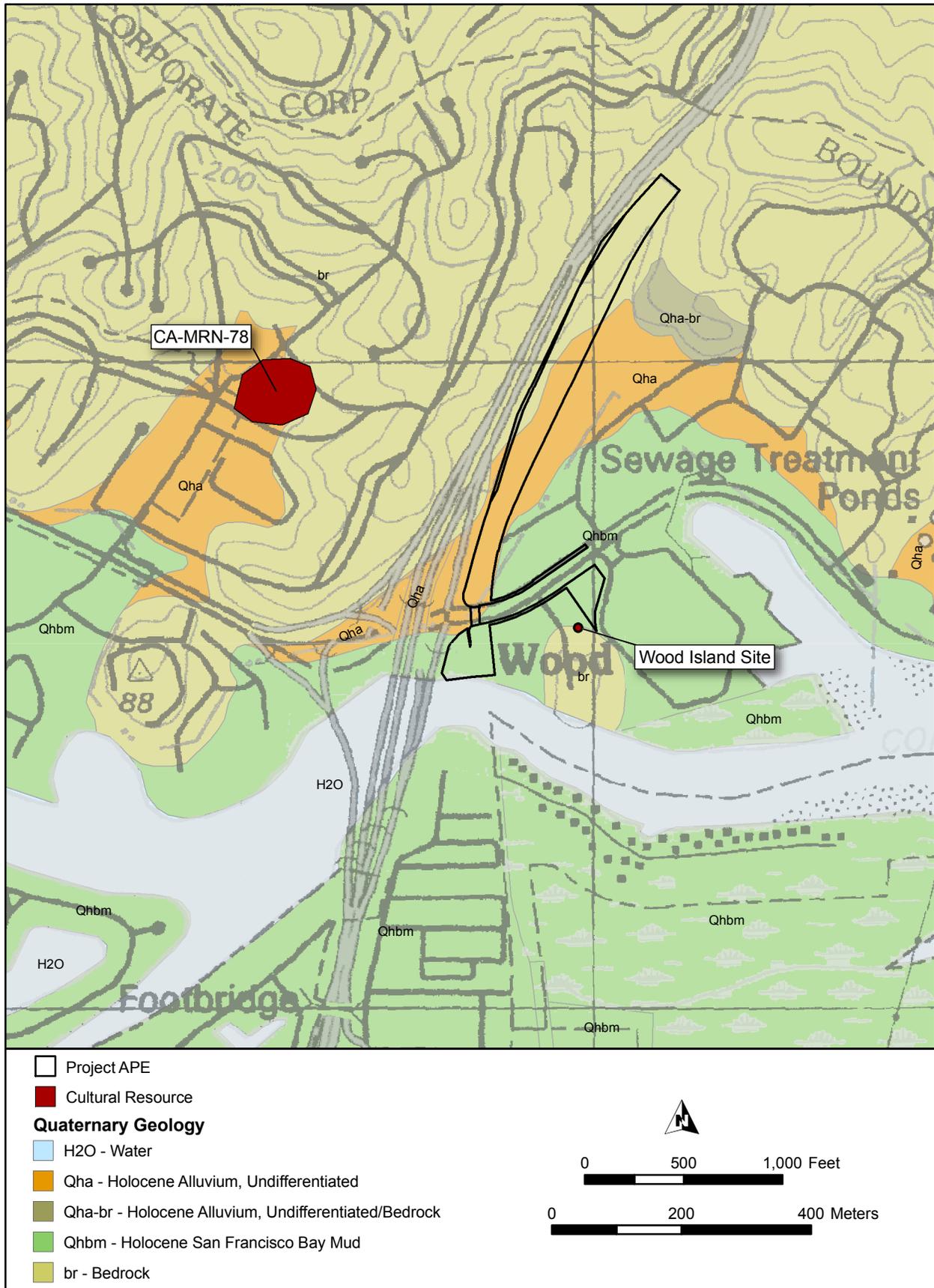


Figure 10. Project Area Showing Quaternary Landforms and Surface Prehistoric Sites.

Rosenthal 2007:21; Nelson 1909:330). This is not surprising since sea-level rise drowned valley floors near the ocean, and these settings were ideal for human habitation. For example Late Holocene shell mounds cluster along the edge of Bay Mud/tidal estuaries throughout much of eastern Marin County (Byrd and Petersen 2008; Nelson 1909: Map 1).

Based on prior studies of the vertical depth of Holocene-age deposits in the Bay Area, thick accumulations of sediments are likely to have built up near the coastline within Corte Madera Creek. Meyer (2003) previously summarized extant dates on buried Holocene sediments in the Bay Area, revealing they may extend up to 37 meters below sea level. These results are supported by nearby paleoenvironmental coring of Holocene Bay Mud deposits along Richardson Bay immediately to the south (Conner 1983), and at Miwok Meadows within China Camp State Park to the northeast (Duncan 1992). These coring projects reveal that even at a depth of 9.5 meters below mean sea level, sediments still only date to less than 6,000 years before present (see Figure 5). Sediments dating to the early half of the Holocene should occur at a considerably deeper depth below sea level.

In summary, both of the Holocene mapped units (Holocene Bay Mud and Holocene alluvium), which account for 61% of the project corridor, have a high-to-moderate potential for containing buried prehistoric archaeological sites. In contrast, the other mapped unit—bedrock—has no potential. Prehistoric archaeological sites, if present, may lie buried within the project corridor based on these geomorphic classifications and prior geoarchaeological assessment for the area (Meyer and Rosenthal 2007). Thus, the estimates of buried site potential are based largely on the age and depositional environment of the various deposits mapped in the project APE. Given this situation, it is quite possible that archaeological resources may exist within the project APE that lack surface indicators.

## 7. SUMMARY AND MANAGEMENT RECOMMENDATIONS

All accessible areas of this urbanized setting were surveyed for archaeological material. No cultural resources were encountered during the pedestrian survey. The potential for buried sites was analyzed and much of the project APE is considered sensitive for buried sites.

As currently defined, the project has the potential to impact undocumented buried archaeological sites. The project entails the construction of a new overcrossing of Sir Francis Drake Boulevard with pile-supported bridge abutments and piers on both sides of the street. Since the piles would be placed to considerable depth within the high-moderate sensitivity zone for buried sites, Extended Phase I testing is recommended. Ideally this should entail backhoe trenching, with specific locations determined once the Area of Direct Impact (ADI) has been defined. If backhoeing is not practical, then continuous-sample mechanical coring should be undertaken. If continuous core samples have already been obtained within the ADI, then laboratory analysis of existing cores by a qualified geoarchaeologist may be sufficient. Such an approach aids project planning and site avoidance, and reduces the likelihood of project delays if a resource is encountered during construction.

It is best to avoid cultural resources whenever possible. If previously unidentified cultural materials are unearthed during construction, work should be halted in that area until a qualified archaeologist can assess the significance of the find. If adjustments are made to the final design, then an archaeologist should be consulted to determine the potential impacts to buried cultural resources. Also, additional archaeological survey will be needed if project limits are extended beyond the present survey limits.

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APPENDIX A

NATIVE AMERICAN CONSULTATION CORRESPONDENCE



FAR WESTERN  
ANTHROPOLOGICAL RESEARCH GROUP, INC.

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June 2, 2008

Ms. Debbie Pilas-Treadway  
Native American Heritage Commission  
915 Capitol Mall, Room 364  
Sacramento, CA 95814  
FAX: 916-657-5390

Re: Request for Sacred Land Inventory Search; Native American contact names and addresses  
(Greenbrae 101 CFMC, Carter-Burgess, FW Job #807)

Dear Ms. Pilas-Treadway

The Transportation Association of Marin is proposing to improve traffic flow along the Highway 101 Greenbrae Corridor between Sir Francis Drake Blvd. and Tamalpais Avenue in San Rafael, Marin County, California. One aspect of this project entails the establishment of the Central Marin Ferry Connection near Sir Francis Drake Boulevard. This project will be conducted in compliance with Section 106 of the National Historic Preservation Act and the California Environmental Quality Act.

For this reason, Far Western Anthropological Research Group, Inc (Far Western) is conducting a cultural resources study of the project area indicated on the enclosed San Rafael 7.5' USGS Quadrangle (Unsectioned portions of wetlands, Punta De Quintin Land grant and Corte Madera Del Presidio).

Far Western has been contracted to consult with the Native American community, complete a records search, and conduct the field investigation for this project. This letter requests a check of the Sacred Lands file for the project area and the area within 0.5 miles of project boundaries. We would also appreciate addresses and phone numbers of contacts who live in the region.

If you have any questions, please contact me at (530) 756-3941, extension 122 or by email at [Brian@farwestern.com](mailto:Brian@farwestern.com). Thank you for your assistance on this project.

Sincerely,

Brian F. Byrd, Ph.D., RPA  
Principal Investigator

Encl: 1 map

STATE OF CALIFORNIA

Arnold Schwarzenegger, Governor

**NATIVE AMERICAN HERITAGE  
COMMISSION**915 CAPITOL MALL, ROOM 364  
SACRAMENTO, CA 95814  
(916) 653-4082  
Fax (916) 657-5390

June 4, 2008

Brian F. Byrd  
Principal Investigator  
Far Western  
2727 Del Rio Place, Suite A  
Davis, CA 95618Sent by Fax: 530-756-0811  
Number of Pages: 2

Re: Proposed Greenbrae 101 CFMC, Carter-Burgess, FW Job#807; Marin County.

Dear Mr. Byrd:

A record search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4040.

Sincerely,

A handwritten signature in black ink that reads "Katy Sanchez".

Katy Sanchez  
Program Analyst

**Native American Contacts**

Marin County

June 4, 2008

The Federated Indians of Graton Rancheria  
 Gene Buvelot  
 6400 Redwood Drive, Ste 300 Coast Miwok  
 Rohnert Park , CA 94928 Southern Pomo  
 coastmiwok@aol.com  
 (415) 883-9215 Home

The Federated Indians of Graton Rancheria  
 Frank Ross  
 440 Apt. N Alameda del Prado Coast Miwok  
 Novato , CA 94949 Southern Pomo  
 miwokone@yahoo.com  
 (415) 269-6075

Ya-Ka-Ama  
 6215 Eastside Road Pomo  
 Forestville , CA 95436 Coast Miwok  
 (707) 887-1541 Wappo

The Federated Indians of Graton Rancheria  
 Greg Sarris, Chairperson  
 6400 Redwood Drive, Ste 300 Coast Miwok  
 Rohnert Park , CA 94928 Southern Pomo  
 coastmiwok@aol.com  
 707-566-2288  
 707-566-2291 - fax

Kathleen Smith  
 1778 Sunnyvale Avenue Pomo  
 Walnut Creek , CA 94596 Coast Miwok  
 (925) 938-6323

**This list is current only as of the date of this document.**

**Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.**

**This list is only applicable for contacting local Native Americans with regard to cultural resources for the propose Greenbrae 101 CFMC, Carter-Brugess, FW Job #807); Marin County.**



October 7, 2008

Ms. Kathleen Smith  
1778 Sunnyvale Avenue  
Walnut Creek, CA 94596

Re: proposed cultural resources project in Marin County

Dear Ms. Smith,

The Transportation Association of Marin is proposing to improve traffic flow along the Highway 101 Greenbrae Corridor between Sir Francis Drake Blvd. and Tamalpais Avenue in San Rafael, Marin County, California. One aspect of this project entails the establishment of the Central Marin Ferry Connection near Sir Francis Drake Boulevard. The project area is marked on the enclosed map, and can be located on the 7.5 minute U.S.G.S. quadrangle San Rafael (Corte Madera del Presidio and Punta de Quintin Landgrants, unsectioned). Ultimately, the project will include ground disturbance. This project will be conducted in compliance with Section 106 of the National Historic Preservation Act and the California Environmental Quality Act.

On behalf of the Transportation Association of Marin, Carter Burgess has contracted Far Western Anthropological Research Group to conduct a cultural resources constraints analysis including a records search and consultation with the Native American community. We would like to know if there is any information that the Native American community believes we should consider in our project planning. If you know of any cultural resource issues in or adjacent to the project area, please contact us at your earliest convenience. If we do not hear from you by November 10, 2006, we will assume that you have no concerns to communicate.

If you have any questions, please contact me at (530) 756-3941, extension 122 or by email at [Brian@farwestern.com](mailto:Brian@farwestern.com). Thank you for your assistance on this project.

Sincerely,

Brian F. Byrd, Ph.D., RPA  
Principal Investigator

Encl: 1 map



FAR WESTERN  
ANTHROPOLOGICAL RESEARCH GROUP, INC.

---

October 7, 2008

Mr. Gene Buvelot  
The Federated Indians of Graton Rancheria  
PO Box 14428  
Santa Rosa CA 95402

Re: proposed cultural resources project in Marin County

Dear Mr. Buvelot,

The Transportation Association of Marin is proposing to improve traffic flow along the Highway 101 Greenbrae Corridor between Sir Francis Drake Blvd. and Tamalpais Avenue in San Rafael, Marin County, California. One aspect of this project entails the establishment of the Central Marin Ferry Connection near Sir Francis Drake Boulevard. The project area is marked on the enclosed map, and can be located on the 7.5 minute U.S.G.S. quadrangle San Rafael (Corte Madera del Presidio and Punta de Quintin Landgrants, unsectioned). Ultimately, the project will include ground disturbance. This project will be conducted in compliance with Section 106 of the National Historic Preservation Act and the California Environmental Quality Act.

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Sincerely,

Brian F. Byrd, Ph.D., RPA  
Principal Investigator

Encl: 1 map



October 7, 2008

Chairperson Greg Sarris  
The Federated Indians of Graton Rancheria  
PO Box 14428  
Santa Rosa CA 95402

Re: proposed cultural resources project in Marin County

Dear Mr. Sarris,

The Transportation Association of Marin is proposing to improve traffic flow along the Highway 101 Greenbrae Corridor between Sir Francis Drake Blvd. and Tamalpais Avenue in San Rafael, Marin County, California. One aspect of this project entails the establishment of the Central Marin Ferry Connection near Sir Francis Drake Boulevard. The project area is marked on the enclosed map, and can be located on the 7.5 minute U.S.G.S. quadrangle San Rafael (Corte Madera del Presidio and Punta de Quintin Landgrants, unsectioned). Ultimately, the project will include ground disturbance. This project will be conducted in compliance with Section 106 of the National Historic Preservation Act and the California Environmental Quality Act.

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Sincerely,

Brian F. Byrd, Ph.D., RPA  
Principal Investigator

Encl: 1 map



FAR WESTERN  
ANTHROPOLOGICAL RESEARCH GROUP, INC.

---

October 7, 2008

Mr. Frank Ross  
The Federated Indians of Graton Rancheria  
813 Lamont Ave  
Novato CA 94945

Re: proposed cultural resources project in Marin County

Dear Mr. Ross,

The Transportation Association of Marin is proposing to improve traffic flow along the Highway 101 Greenbrae Corridor between Sir Francis Drake Blvd. and Tamalpais Avenue in San Rafael, Marin County, California. One aspect of this project entails the establishment of the Central Marin Ferry Connection near Sir Francis Drake Boulevard. The project area is marked on the enclosed map, and can be located on the 7.5 minute U.S.G.S. quadrangle San Rafael (Corte Madera del Presidio and Punta de Quintin Landgrants, unsectioned). Ultimately, the project will include ground disturbance. This project will be conducted in compliance with Section 106 of the National Historic Preservation Act and the California Environmental Quality Act.

On behalf of the Transportation Association of Marin, Carter Burgess has contracted Far Western Anthropological Research Group to conduct a cultural resources constraints analysis including a records search and consultation with the Native American community. We would like to know if there is any information that the Native American community believes we should consider in our project planning. If you know of any cultural resource issues in or adjacent to the project area, please contact us at your earliest convenience. If we do not hear from you by November 10, 2006, we will assume that you have no concerns to communicate.

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Sincerely,

Brian F. Byrd, Ph.D., RPA  
Principal Investigator

Encl: 1 map



FAR WESTERN  
ANTHROPOLOGICAL RESEARCH GROUP, INC.

---

October 7, 2008

Ya-Ka-Ama  
6215 Eastside Road  
Forestville CA 95436

Re: proposed cultural resources project in Marin County

Dear Tribal Members,

The Transportation Association of Marin is proposing to improve traffic flow along the Highway 101 Greenbrae Corridor between Sir Francis Drake Blvd. and Tamalpais Avenue in San Rafael, Marin County, California. One aspect of this project entails the establishment of the Central Marin Ferry Connection near Sir Francis Drake Boulevard. The project area is marked on the enclosed map, and can be located on the 7.5 minute U.S.G.S. quadrangle San Rafael (Corte Madera del Presidio and Punta de Quintin Landgrants, unsectioned). Ultimately, the project will include ground disturbance. This project will be conducted in compliance with Section 106 of the National Historic Preservation Act and the California Environmental Quality Act.

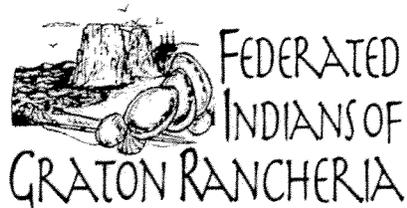
On behalf of the Transportation Association of Marin, Carter Burgess has contracted Far Western Anthropological Research Group to conduct a cultural resources constraints analysis including a records search and consultation with the Native American community. We would like to know if there is any information that the Native American community believes we should consider in our project planning. If you know of any cultural resource issues in or adjacent to the project area, please contact us at your earliest convenience. If we do not hear from you by November 10, 2006, we will assume that you have no concerns to communicate.

If you have any questions, please contact me at (530) 756-3941, extension 122 or by email at [Brian@farwestern.com](mailto:Brian@farwestern.com). Thank you for your assistance on this project.

Sincerely,

Brian F. Byrd, Ph.D., RPA  
Principal Investigator

Encl: 1 map



**Sacred Sites Protection Committee**  
**6400 Redwood Drive, Suite 300**  
**Rohnert Park, CA 94928**  
**707- 566-2288**

November 22, 2008

Brian Byrd  
Far Western Anthropological Research Group  
2727 Del Rio Place, Suite A  
Davis, CA 95618

RE: Central Marin Ferry Connection

Dear Mr. Byrd:

Thank you for your letter of October 7, 2008 informing us of your study of the proposed project at Central Marin Ferry Connection off Sir Francis Drake Blvd.. (Your letter was not received by the Tribe until October 24.) The Federated Indians of Graton Rancheria (FIGR), a federally recognized Tribe, appreciates the request for information on this Section 106 project.

The Tribe currently has no specific knowledge of sacred sites, ceremonial places or gathering sites at this address. However, in areas immediately adjacent to this property the presence of buried cultural resources, including ancestral human remains have been uncovered. We consider this a very sensitive area and request government to government consultation under the Section 106 guidelines. Please notify the Lead Agency to contact me to schedule the first consultation at the numbers below.

We also request a list of other permitting agencies for this project. Please email their contact information.

Respectfully,

A handwritten signature in black ink, appearing to read 'Nick Tipon'.

Nick Tipon  
ntipon@comcast.net  
707 478-1737

**APPENDIX B**

**SURVEY COVERAGE TABLE AND FIELD PHOTOS**

Appendix B: Survey Coverage Table

Greenbrae CMFC ASR		APE Map No	Access Permission	Survey Method*	Surface Visibility**	Photo	View	Surface Conditions / Current Use
Parcel	Category							
018-171-01 & -02		1		1	low	475	30°	Through cut along abandoned railroad tracks with Cal Park Tunnel in background.
018-171-01 & -02		1		1	low	476	10°	Through cut along abandoned railroad tracks with Cal Park Tunnel in background.
018-171-17 & -19		1		1	low	477	10°	Thick vegetation along abandoned railroad tracks.
018-171-17 & -19		1		1	low	478	90°	Thick vegetation along abandoned railroad tracks.
018-171-17		1		1	low	479	10°	Through cut along abandoned railroad tracks north of gravel parking lot.
018-171-17		1		1	low	480	170°	Gravel parking area along aband railroad grade.
018-172-01 & -02		1			low	481	140°	Survey area south of E. Sir Francis Drake Boulevard.
NA		1		2	low	482	50°	Survey area south of E. Sir Francis Drake Boulevard and west of abandoned railroad tracks.
018-172-01 & -02		1		2	low	483	175°	Survey area south of E. Sir Francis Drake Boulevard and west of abandoned railroad tracks.
NA		1		2	low	484	200°	Survey area south of E. Sir Frances Drake Boulevard and east of US 101.
018-172-18 & -19		1		1	high	485	360°	Area northeast of Wood Island and south of Sir Francis Drake Boulevard.
018-172-18 & -19		1		1	high	486	200°	Area northeast of Wood Island and south of Sir Francis Drake Boulevard.
NA		2		1	low	487	200°	Old Redwood Highway north of Rich Street and east of US 101.
NA		2		1	low	488	320°	Old Redwood Highway north of Wornum Drive and east of US 101.

Notes: \* 1 – Full pedestrian survey, 2 – Partial pedestrian survey, 3 – Visual inspection from adjacent land only; \*\* High – >75% sediment visible, Low – <25% sediment visible; NA – No parcel number assigned by county.

Appendix B: Field Photos



IMGP0475.JPG



IMGP0476.JPG



IMGP0477.JPG



IMGP0478.JPG



IMGP0479.JPG



IMGP0480.JPG

Appendix B: Field Photos



IMGP0481.JPG



IMGP0482.JPG



IMGP0483.JPG



IMGP0484.JPG



IMGP0485.JPG



IMGP0486.JPG

Appendix B: Field Photos



IMGP0487.JPG



IMGP0488.JPG

APPENDIX D

PROJECT APE AND ARCHAEOLOGICAL SURVEY COVERAGE MAPS



Figure D-1. Survey Coverage.





Transportation Authority of Marin  
Central Marin Ferry Connection Project,  
Marin County, California

Phase 1

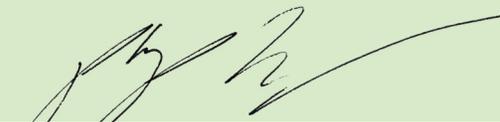
SUBSURFACE GEOARCHAEOLOGICAL INVESTIGATIONS  
REPORT

September 2009

TAM Project No.: C-FY05/06-007

Jacob Carter Burgess Agreement No.: 160577.012

SUBMITTED BY:

  
Philip Kafankoski, Geoarchaeologist

9/15/09

Date

  
Jack Meyer, Principal Geoarchaeologist

9/15/09

Date

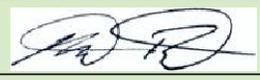
REVIEWED BY:

  
Lauren Abom  
Senior Environmental Planner

10/30/09

Date

APPROVED BY:

 For  
Kai Chan, PE  
Transportation Program Manager

10/30/09

Date



## SUMMARY OF FINDINGS

Far Western Anthropological Research Group, Inc. (Far Western), on behalf of Jacobs Carter Burgess and the Transportation Authority of Marin (TAM), conducted Extended Phase I subsurface ge archaeological investigations in support of Phase 1 of the Central Marin Ferry Connection (CMFC) Project near Sir Francis Drake Boulevard. Phase 1 of the CMFC project extends along the east side of US Highway 101 (US 101) from Corte Madera Creek northward to approximately 0.7 kilometers north of Sir Francis Drake Boulevard. This project will require compliance with Section 106 of the National Historic Preservation Act (16 USC 470 et seq.) and the California Environmental Quality Act (CEQA; Public Resources Code Section 21000 et seq.) which mandates federal and California public agencies to consider the effects an undertaking may have on historic properties.

Previously a Phase I archaeological investigation was completed for the CMFC project, which consisted of a records search, Native American Consultation, buried site assessment, and archaeological survey (Byrd 2009). No archaeological sites have been identified in the project Area of Potential Effects (APE). However, because the APE is situated near the San Francisco Bay margin where many sites are located, and it appears to contain Holocene-age surface deposits, much of the APE was considered sensitive for buried sites. For these reasons an Extended Phase I investigation was recommended to search for sites that may be buried in the APE.

Extended Phase I testing focused on areas determined to be sensitive for buried archaeological sites where substantial project related subsurface disturbances are planned, specifically the new Sir Francis Drake Boulevard overcrossing. This testing consisted primarily of hydraulic continuous core soil sampling followed by laboratory, stratigraphic, and radiocarbon dating analysis. No prehistoric archaeological materials were identified as a result of this study. No further archaeological studies, including construction monitoring, are recommended for Phase 1 of the proposed CMFC project.

It is best to avoid cultural resources whenever possible. If previously unidentified cultural materials are unearthed during construction, work should be halted in that area until a qualified archaeologist can assess the significance of the find. Additional archaeological investigations may be necessary if the APE is expanded or if areas of deep impact are relocated to other portions of the APE. If such changes are made an archaeologist should be consulted to determine the potential impacts to buried cultural resources.



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## 1. INTRODUCTION

The Transportation Authority of Marin (TAM) is proposing to construct a new multi-use pathway intended to further promote non-motorized commute alternatives and enhanced recreation travel within the City of Larkspur in Marin County, California (Figure 1). TAM plans to construct the project in two phases. Phase 1 of the proposed project, and the scope of this proposed project, would construct a multi-use pathway adjacent to the east side of US 101 from post mile (PM) 14.7 to PM 15.3 that would include an overcrossing above East Sir Francis Drake Boulevard (SFDB) and connect to the existing multi-use pathway located south of SFDB. Phase 1 would connect to the southern limit of the Cal Park Hill Tunnel Rehabilitation and Path Project to the north, which is currently under construction.

Phase 2 of the proposed project would extend the Phase 1 multi-use pathway to the south along the east side of US 101 to Wornum Drive and may include an overcrossing above Corte Madera Creek and provide access to the Greenbrae Boardwalk. Once completed, the entire Central Marin Ferry Connection (CMFC) project (i.e., Phases 1 and 2) would provide a continuous multi-use pathway from the Cal Park Hill Tunnel and the future Sonoma Marin Area Rail Transit (SMART) Larkspur Station in the north to Wornum Drive in the south. Currently, funding has been identified only for Phase 1, and any studies needed for Phase 2 will be addressed once funding has been secured.

This project will require compliance with Section 106 of the National Historic Preservation Act (16 USC 470 et seq.) and the California Environmental Quality Act (CEQA; Public Resources Code Section 21000 et seq.) which mandates federal and California public agencies to consider the effects an undertaking may have on historic properties. Compliance with Section 106 is being carried out in accordance with the January 1, 2004 *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California*. As such, agencies must document that a reasonable and good-faith effort was made to identify archaeological resources that may be impacted by project-related earth disturbances, including those that may be buried.

Previously a Phase I archaeological investigation was completed for the CMFC project, which consisted of a records search, Native American Consultation, buried site assessment, and archaeological survey (Byrd 2009). The records search indicated that no archaeological sites have been recorded in the APE; however two prehistoric sites are located within 0.5 mile of the APE. No sites were identified by the archaeological survey of the APE. However, due to the project location along the Corte Madera Creek/San Francisco Bay margin and the Holocene-age of the geologic deposits mapped at the surface, portions of the APE were determined to have high-to-moderate potential for containing buried prehistoric archaeological sites. For these reasons Extended Phase I explorations for buried sites in portions of the APE were recommended. Extended Phase I investigations are commonly employed to search for archaeological deposits, as an extension of the pedestrian survey effort, in areas of high sensitivity where such deposits may be buried by sediment deposition (see California Department of Transportation 2006, section 5-5).

Far Western conducted Extended Phase I subsurface geoarchaeological investigations in support of Phase 1 of the CMFC project. This report documents the methods, results, and findings of this investigation conducted in the APE on June 26 and 27, 2009 by Far Western personnel. The exploratory work consisted primarily of hydraulic continuous core soil sampling performed by Far Western Geoarchaeological Specialist Philip Kaijankoski, M.A., under the direction of Principal Investigator Brian F. Byrd, Ph.D., and Principal Geoarchaeologist Jack Meyer, M.A. These individuals have many years of experience in California archaeology and exceed the required qualifications for Archeology as defined by the US Department of Interior. No archaeological materials were identified as a result of this work. This report describes the age, nature, and extent of the major subsurface strata identified, discusses the substantive findings from the project area as a whole, assesses the potential influence of landscape changes on the visibility of the archaeological record in the project area and surrounding region, and provides recommendations for further archaeological work in the APE.



Figure 1. Project Location.



Figure 2. Detailed Project Map.

## 2. PROJECT COMPONENTS

Phase 1 of the proposed CMFC project will include the following construction activities:

- Conduct a geotechnical survey
- Construct a new multi-use pathway that extends from the existing Cal Park Hill Tunnel Rehabilitation and Path Project to East SFDB
- Construct a new multi-use pathway overcrossing structure and approach ramps at East SFDB
- Construct a new access ramp from the sidewalk on the north side of East SFDB to the new overcrossing
- Construct an approach ramp for the multi-use path south of East SFDB with viewing areas above the salt marsh area and Corte Madera Creek
- Construct a new access ramp that conforms to the existing multi-use paths and repave a portion of the existing multi-use pathway south of East SFDB from the US 101 northbound off ramp structure to the Larkspur Ferry Terminal entrance
- Construct retaining walls at various locations along the multi-use path
- Construct new sidewalks, curbs, and gutters along East SFDB
- Install signage, striping, lighting, screening, handrails, fencing, landscaping, truncated domes and/or bollards
- Construct storm water swales and detention basins
- Remove or retrofit all or a portion of the existing railroad trestle
- Relocate and protect existing utilities
- Construct temporary access areas within the salt marsh and Corte Madera Creek

### 3. GEOENVIRONMENTAL HISTORY AND SETTING

The San Francisco Bay Area has undergone a series of dramatic environmental changes during the period of human occupation (approximately the last 13,500 years). These changes have had a distinct effect on the distribution of plant and animal communities, which in turn had a direct bearing on past human settlement-subsistence strategies. Likewise, there is a close relationship between the nature and extent of large-scale environmental fluctuations and the timing of significant landscape changes, which consequently affected the preservation of archaeological sites from different time periods.

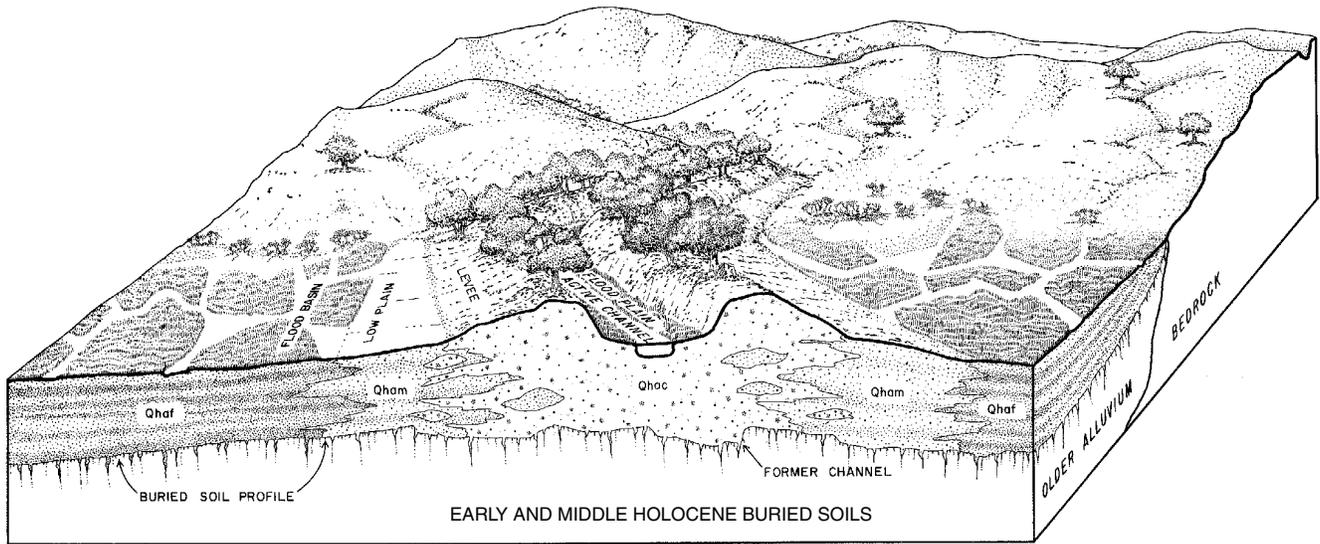
At the height of the last glacial maximum some 22,000 to 19,000 years ago, worldwide sea levels were at least 125 meters (410 feet) lower than today, and the Pacific coastline was located some 25 to 50 kilometers (about 15 to 30 miles) west of its current position (Atwater et al. 1977; Bard et al. 1996; Yokoyama et al. 2000). At that time, the Sacramento and San Joaquin rivers formed a single watercourse that flowed through the area now occupied by the San Francisco Bay and across the continental shelf before entering the Pacific Ocean near the Farallon Islands (Atwater et al. 1977). The area that now makes up San Francisco Bay was at that time a broad inland valley, crossed by numerous streams and rivers with incised channels that were graded to base levels significantly lower than today.

As the continental ice sheets began to melt some 19,000 years ago (Yokoyama et al. 2000), the world's oceans rose rapidly, causing the sea to migrate eastward across the continental shelf. During the latest Pleistocene and early Holocene (14,000-7000 cal BP), the sea rose a total of about 80 meters (~262 feet) at a relatively rapid average rate of about 11.4 meters (~37.4 feet) every 1,000 years, which was enough to fill the lower San Francisco Bay and its adjoining drainages. Between 7000 and 4000 cal BP (years Before Present), there was a dramatic decrease in the rate of sea-level rise worldwide (Stanley and Warne 1994), after which the sea inundated the Franciscan Valley at a more gradual rate of about 1.3 meters (4.3 feet) every 1,000 years (8.0 meters, or 26.2, feet total). This allowed sedimentation to keep pace with inundation, and permitted the formation of extensive tidal-marsh deposits during the middle Holocene (Connor 1983).

As base levels increased in response to sea-level rise, the lower reaches of stream and river channels became choked with sediment that spilled onto the surface of existing fans and floodplains, forming large alluvial plains (Helley et al. 1979). The young bay continued to grow in size during the late Holocene, and marshlands expanded in response to higher sea levels and the decomposition, compaction, and subsidence of inter-tidal deposits, particularly in the south bay. As a result, many older land surfaces were covered by at least two to three meters of Holocene-age alluvial deposits near the bay margins (Atwater et al. 1977:Plate 1; Borchardt 1992; Gmoser et al. 1999; Helley et al. 1979; Lee and Praszker 1969:60-63; Louderback 1951:90; Meyer 2000, 2001; Stewart et al. 2002; Treasher 1963:Figure 5). These older buried land surfaces are often marked by well-developed soils that represent a significant stratigraphic boundary in the region (Figure 3).

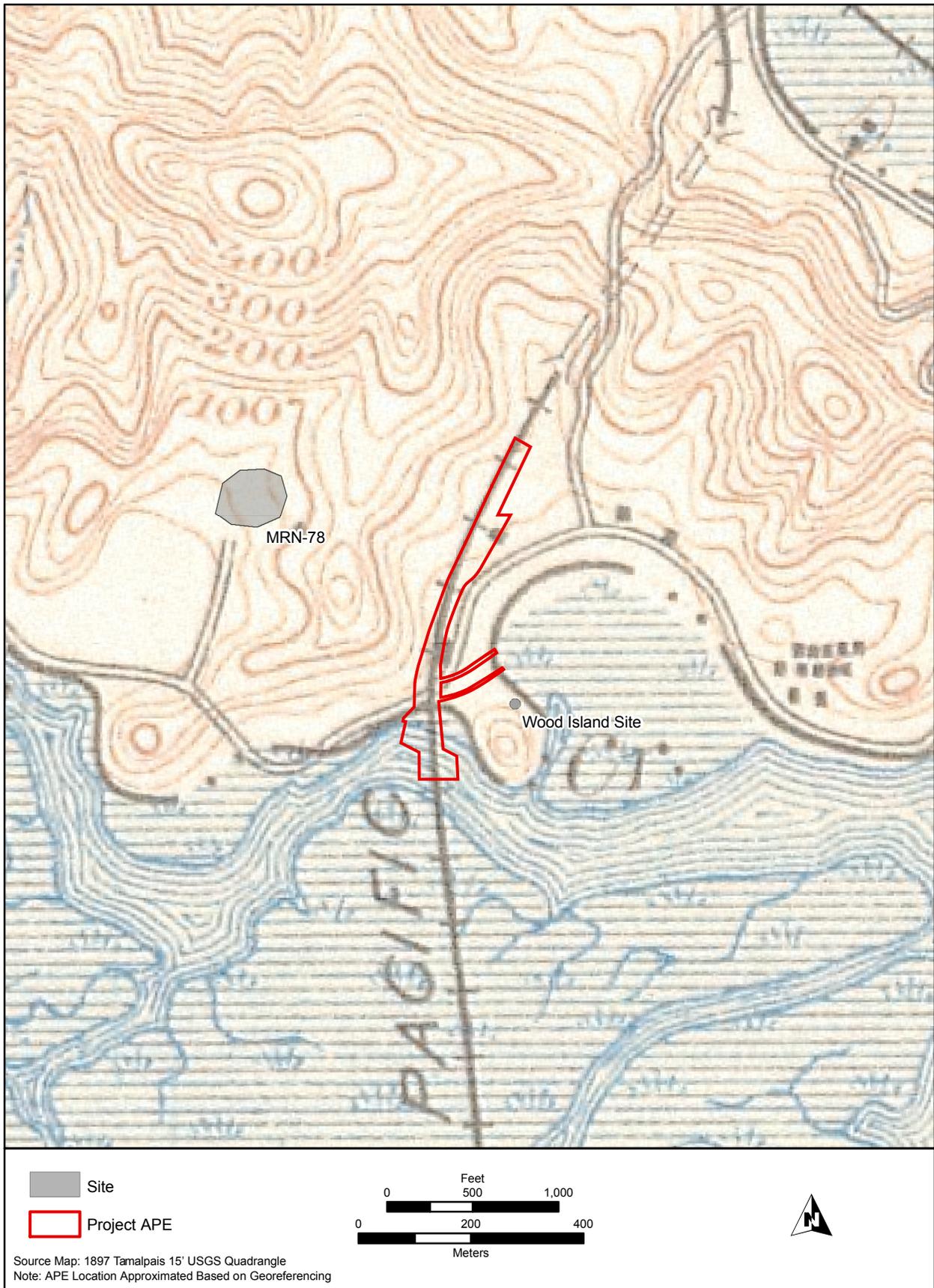
Historic-era changes in the region included widespread erosion of the uplands, rapid sediment deposition in the lowlands, formation of deeply incised channels in alluvium-filled valleys, and the appearance of introduced (non-native) plant species. These changes, generally coinciding with the arrival of Spanish and other Euro-American settlers during the 1700s and 1800s (West 1989), have been documented in part by studies of wetland plants in nearby Richardson Marsh (Connor 1983), and other locations in the Bay Area (Duncan 1992; Mudie and Byrne 1980; Reidy 2001; Russell 1983).

During the late 1800s, protective vegetation cover was greatly reduced by intense drought and livestock grazing, which made the landscape particularly susceptible to erosion (Burcham 1957:171), as did many historic-era logging, mining, and agricultural practices. Finally, thick deposits of artificial fill were placed around the margins of the bay to reclaim the marshes and wetlands for human development (Lee and Praszker 1969). While some archaeological resources may have been partially or completely destroyed by historic development, others were obviously buried by artificial fill. Given the location of the project area within, or immediately adjacent to, the historic-era bay margins (Figure 4), it is likely that portions have been substantially altered by historic development.



(from Helley et al. 1979:Figure 19)

Figure 3. Schematic Cross-Section of Bay Area Landforms.



#### 4. LANDSCAPE EVOLUTION AND THE ARCHAEOLOGICAL RECORD

It is, perhaps, not surprising that the first human inhabitants of central California would have found the Franciscan Valley and interconnected lowlands attractive places to live. Prior to formation of the Bay, these were prominent river valleys, traversed by sinuous riparian forests and broad oak savanna that provided excellent habitat for tule elk (*Cervus elaphus*), deer (*Odocoileus* spp.), and pronghorn (*Antilocapra americana*), and for an earlier group of megafauna including mammoth, bison, horse, and camel, among others. Extensive watersheds would have assured the region's importance during drought, particularly in the early and middle Holocene, and the tributaries of larger rivers and streams offered an abundant supply of resident freshwater and anadromous fishes. Economically important plants would have also been abundant, as they were during the early historic period.

Yet with only a few important exceptions, archaeological sites dating older than a few thousand years have rarely been discovered in the Bay Area. In fact, fewer than 15% of the radiocarbon-dated sites in this region are older than 4,000 years, and fewer than 5% are older than 6,000 years (Meyer and Rosenthal 2000). This bias in the archaeological record can be explained, in part, by the dramatic changes which have occurred in the Bay Area landscape since humans first occupied the region more than 10,000 years ago. Many of the landforms originally available for human habitation were either submerged beneath the sea as it rose to flood the Franciscan Valley, or were buried by sediments widely deposited around the margins of the Bay-Delta estuary and in the many inland valleys of this region.

Beginning with the earliest systematic studies of central California and Bay Area prehistory, researchers have recognized that a significant portion of the archaeological record may lie buried in the fans and massive alluvial plains of the lowland valleys (Heizer 1949, 1950a, 1950b, 1952:9; Heizer and Cook 1953; Lillard et al. 1939:76; Meighan 1965:709; Schenck and Dawson 1929:294). Until recently, however, the importance of this relationship has been largely overlooked, as subsequent archaeological studies have only occasionally included detailed analyses of site soils and sediments. Of those studies that have specifically incorporated a geological perspective, almost all were initiated after buried archaeological materials were discovered accidentally (Bard et al. 1989, 1992, Fredrickson 1966; Henn et al. 1972; LaJoie et al. 1980). With rare exceptions (Banks et al. 1984; Bickel 1978; Fredrickson 1980), it has only been in the last ten years that archaeologists have explicitly sought to understand the relationship between buried archaeological sites and development of the central California landscape (Allen et al. 1999; Meyer 1996; Meyer and Rosenthal 1997; Rosenthal and Meyer 2004a, 2004b; White 2002, 2003).

Numerous recent studies demonstrate that the broader San Francisco Bay Area has undergone prolonged periods of landform stability, interrupted by several episodes of widespread erosion and relatively rapid deposition (Atwater 1980; Biggar et al. 1978, Borchardt 1992; Borchardt et al. 1980; Helley et al. 1979; Lettis 1982, 1985, 1988; Marchand and Allwardt 1981; Meyer 1996, 2000; Meyer and Rosenthal 1997; Pape 1978; Rogers 1988; Rosenthal et al. 1995; Shlemon and Begg 1972, 1975; Swan et al. 1977; White 2002; among many others). These cycles are expressed as a series of laterally extensive, well-developed buried soils found throughout the depositional landforms of this region. Geoarchaeological studies in the Bay Area have further confirmed a strong correlation between these buried soils and buried archaeological deposits (Allen et al. 1999; Meyer 1996; Meyer and Rosenthal 1997; Rosenthal and Meyer 2004a, 2004b; White 2002).

On a local and regional level, these processes have had a disproportional effect on the structure of the archaeological record, because many sites have been buried by one or more episodes of sediment deposition, particularly those dating to the early and middle Holocene. As discussed below, archaeological components from these time periods are indeed buried in the lowlands and are frequently found in association with middle and early Holocene buried soils. Thus, there is a strong correlation between Holocene-age landforms, buried soils, and buried archaeological remains in the Bay Area.

Since the vast majority of the region's known archaeological record dates to after about 3,000 years ago, future archaeological studies should anticipate the possibility that older and/or under-represented portions of the archaeological record will be discovered in association with buried land surfaces that are 3,000 years or more in age. When such sites are identified, they are likely to have an elevated level of significance from the standpoint of archaeological research and of regulatory compliance.

## 5. BURIED ARCHAEOLOGICAL SITES IN THE BAY REGION

Buried archaeological deposits associated with buried soils have been discovered in virtually every major valley in the San Francisco Bay Area, at various places in the Central Valley, and the southern North Coast Ranges (Martin and Meyer 2005; Meyer 1996; Meyer and Rosenthal 1997; Origer 1993; Rosenthal and Meyer 2004a; White 2002, 2003). For example, buried sites or site components have been identified finds at several locations (e.g., CA-ALA-576, -586, and -566; CCO-548, -637, -696) in the East Bay that range between about 5,300 and 550 years old (Gmoser et al. 1999; Meyer and Rosenthal 1997; Price et al. 2006; Rosenthal et al. 2006; Tiley 2001; Figure 5).

On the San Francisco peninsula, buried shell middens and human skeletal remains have been exposed in the late Holocene sand dunes that underlie the city's financial district. These include SFR-112, -113, and -114, all of which are less than about 2,500 years old (Pastron and Walsh 1988a, 1988b). In addition, a 5,000-year-old human skeleton (SFR-28) was found in downtown San Francisco during construction of the Bay Area Rapid Transit (BART) tunnel. These remains were found in buried marsh deposits at a depth of approximately 18 meters (59 feet) below the historical ground surface and more than seven meters (23 feet) below modern sea level (Henn et al. 1972). A human skeleton dated to 4200 cal BP was also uncovered 3.7 meters (12.1 feet) beneath the surface of San Francisco Bay during dredging operations off of Coyote Point, in a similar geomorphic setting to that of the APE (Leventhal 1987).

Along with the discovery of the "Stanford Man" skull (SCL-33/609) in 1922, the San Francisquito Creek floodplain has yielded a number of deeply buried human skeletons and other features associated with buried soils, including those found at the site of "Stanford Man II" (SCL-613) and at University Village (SMA-77). A deeply buried hearth and a human interment known as the "Sunnyvale Man" were found in association with a buried soil exposed in a storm drain east of Sunnyvale (LaJoie et al. 1980; Moratto 1984). More recently, the "Sunnyvale Red Burial" was exposed by deep construction in downtown Sunnyvale at site SCL-832 (Cartier 2002). Radiocarbon and stratigraphic evidence indicate that these burials are middle Holocene and later in age.

The DeSilva Island site (MRN-17), located directly south of the project area on the north side of Richardson Bay, contains a deeply buried cultural deposit dated between about 6400 and 6200 cal BP, which is one of the oldest in the Bay Area (Pahl 2003). Other buried Middle and Late Holocene sites have been discovered in several of the major and minor valley elsewhere in the southern North Coast Ranges. In the Napa Valley, buried components are reported at NAP-916 and -15, both associated with buried soils. Although geological contexts are not well reported, two other buried sites are known from the upper Napa Valley near St. Helena. These include NAP-129 (Fredrickson 1984:513; Meighan 1953:315) and NAP-399/863 (Bartoy et al. 2005). To the west, in the Santa Rosa Valley, a middle Holocene deposit was found in association with a deeply buried paleosol at SON-2098 (Origer 1993) and an undated site at SON-1384 (White 1982), both found at depths exceeding 1.5 meters below surface.

This brief review of buried sites in the Bay Area demonstrates the potential for such deposits in virtually all of the lowland valleys and bay margins of this region. As many of these constitute the oldest known archaeological deposits in the Bay Area, their research potential is quite high, and therefore these sites tend to have elevated levels of significance with respect to National Register of Historic Places and the California Register of Historical Resources eligibility criteria. The presence of human remains at most of these sites also has implications for Native American heritage and further emphasizes the need to identify such resources early in the planning process.

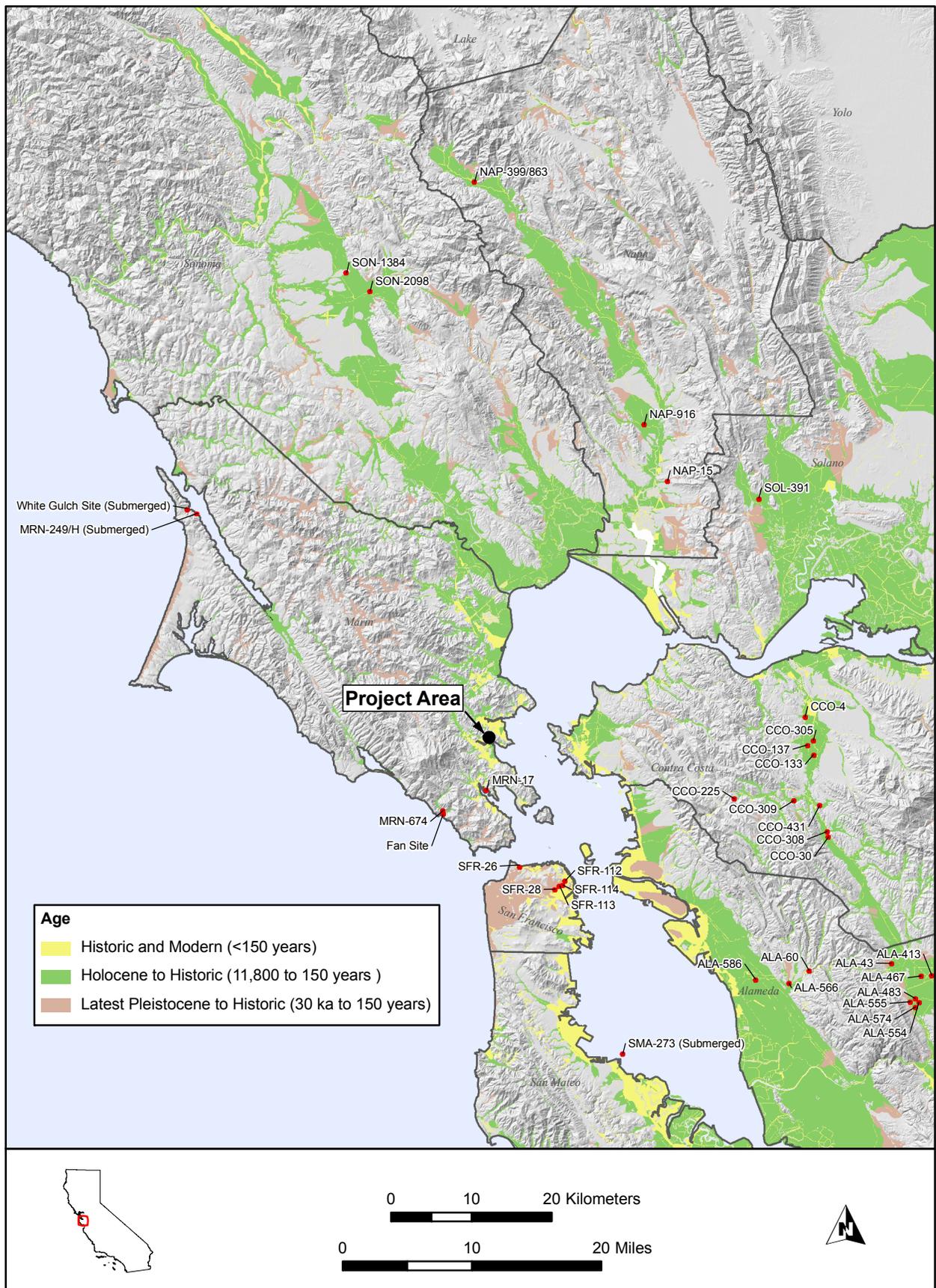


Figure 5. Selected Buried Archaeology Sites in the Northern San Francisco Bay Area.

## 6. BURIED SITE PROBLEM

Although it has long been suspected that natural processes have obscured many archaeological sites in California (Heizer 1949:39-40, 1950b, 1952:9; Lillard et al. 1939; Moratto 1984:214), archaeological visibility has not been treated as a significant problem as it has in other parts of North America. The lack of geoarchaeological studies is an ongoing problem for researchers seeking to understand the relationship between regional site distribution patterns and demographic and settlement-subsistence change in central California (Meyer and Rosenthal 1997).

Over the past decade, however, it has become increasingly apparent that a significant portion of the archaeological record has been buried by the natural geological processes in the San Francisco Bay area and surrounding region (e.g., Rosenthal and Meyer 2004a, b; Meyer and Rosenthal 2008). Recent geoarchaeological studies emphasize that these changes have produced a significant bias in the types of archaeological deposits that can be identified through traditional pedestrian survey, and underscore the correlation between buried archaeological deposits and the presence of now-buried land surfaces (Meyer 1996, 2000; Meyer and Dalldorf 2004; Meyer and Rosenthal 1997, 2008; Rosenthal and Meyer 2004a, 2004b).

For instance, it is not known if the relative paucity of early and middle Holocene-age archaeological sites in the region indicates that human populations were substantially lower during these periods or, alternatively, if it reflects a visibility and sampling bias related to large-scale landscape changes (Rosenthal and Meyer 2004a). The presence of multiple buried Holocene-age soils in the Guadalupe River floodplain in Santa Clara County supports the contention that the early archaeological record has been severely biased by natural geological processes (Kaijankoski 2007; Meyer 2000). Thus, if researchers are to understand the relationship(s) between regional site distributions and demographic and settlement-subsistence changes, then the potential effects of landscape change on the archaeological record must be considered.

At the same time, the potential for buried archaeological sites is a practical problem for resource managers who must make a good-faith effort to ensure that project activities do not inadvertently affect, or adversely impact, potentially important buried archaeological deposits. Early detection of buried archaeological deposits also avoids the potential for costly delays that may occur when resources are discovered after project construction has begun and late-discovery protocols are necessary. Recognizing these problems, this study represents an effort to identify archaeological resources that may be buried within the proposed project area.

## 7. PROJECT AREA ARCHAEOLOGICAL SENSITIVITY

The records search conducted for the archaeological survey indicated that no previously recorded sites are located within the APE; however two prehistoric sites are located within 0.4-kilometer (one-quarter-mile) of the APE (Byrd 2009). Nelson (1907) recorded site MRN-78 as a shell mound within an orchard field along a small canyon. The site was 60 meters in diameter and, despite leveling for cultivation, was around one meter in height. Treganza (1957:24) excavated 8.5 cubic meters in the search for evidence of Drake's sixteenth-century landing. No results were reported except that the maximum depth of cultural material was 90 centimeters and no evidence of early European contact was recovered. Today this location west of the highway is within a residential housing development, and is largely, if not totally, destroyed (a note on the site form states "destroyed – T. Jackson").

In contrast, the Wood Island site was never formally documented with a site form. The only reference to the site is Jackson's (1976) reconnaissance report prior to development. Jackson (1976) observed remnants of shell midden amidst dense poison oak along the northeastern slope of the island as well as sporadically along the island top. No archaeological investigations were conducted at the site prior to construction of an office complex. The northern portion of the island lies near the southern portion of the Phase 1 project area immediately south of Sir Francis Drake Boulevard. As such, the portion of the site noted by Jackson (1976) on the northeast slope of the island is within 50 meters of the APE.

A recent geological map showing Quaternary surface deposits in the nine-counties within the Bay Area developed by Witter et al. (2006) indicates that the APE is situated on three separate geologic deposits including Bedrock (br), Holocene alluvium, undifferentiated (Qha), and Holocene San Francisco Bay mud (Qhbm; Figure 6). There is considerable evidence that the Bay Mud estuarine deposits overlie buried archaeological deposits that extend below modern sea level (Henn et al. 1972; Leventhal et al. 1987; Meyer and Rosenthal 2007:21; Nelson 1909:330). This is not surprising since sea-level rise drowned valley floors near the ocean, and these settings were ideal for human habitation (Connor 1983). For example Late Holocene shell mounds cluster along the edge of Bay Mud/tidal estuaries throughout much of eastern Marin County (Byrd and Petersen 2008; Nelson 1909: Map 1). Given that the Qha and Qhbm geologic units were deposited adjacent to the bay margins during the Holocene, the probability of it containing buried soils and associated archaeological materials is quite high. Conversely, the bedrock mapped in the northern portion of the APE has no potential for buried sites. Taken together the presence of prehistoric site near the APE and Holocene-age sediments situated where deep impacts are anticipated near the bay margin, it is possible that the proposed project may impact buried archaeological resources.

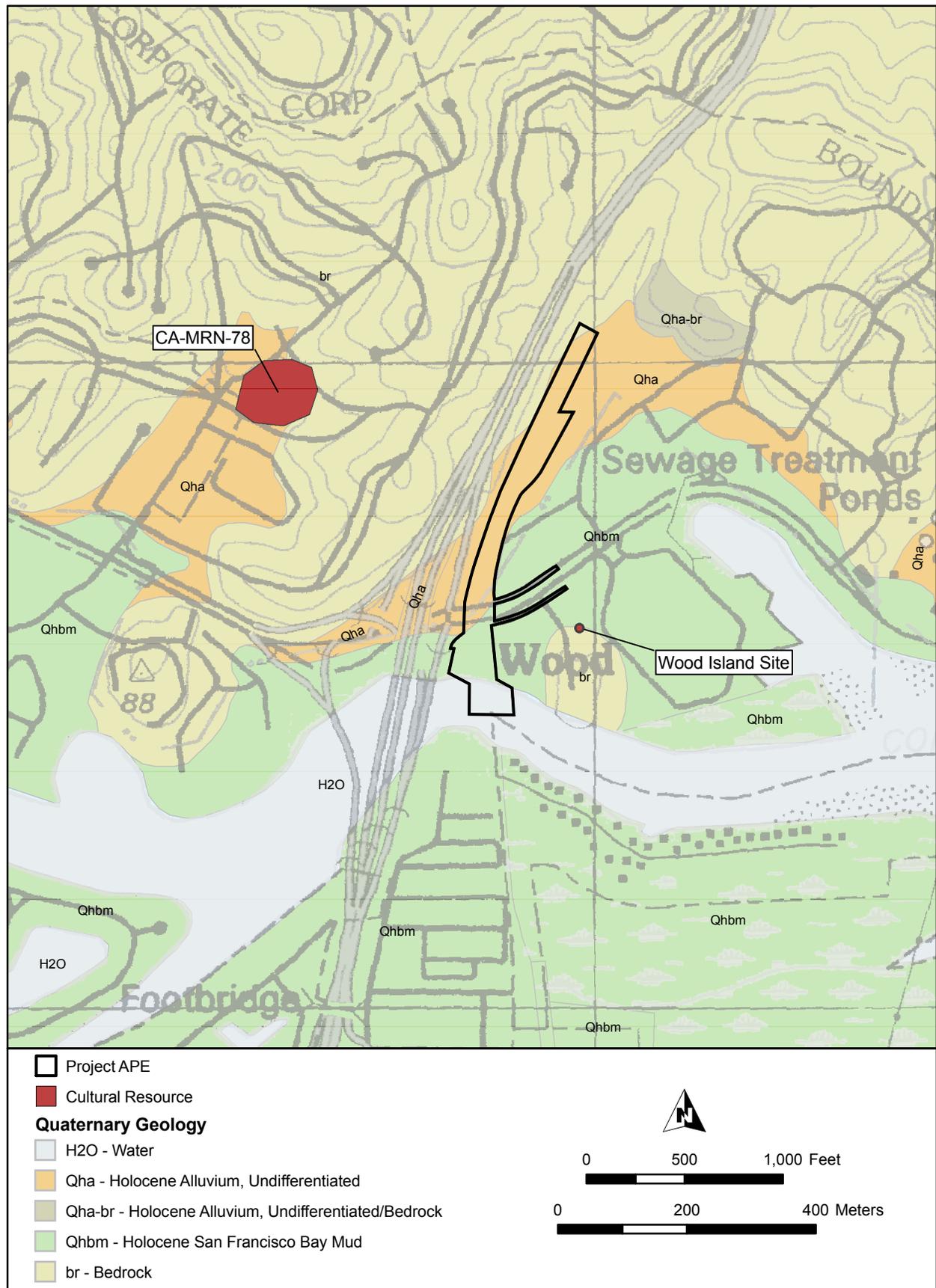


Figure 6. APE overlain on Quaternary Geology Map with CA-MRN-78 and Wood Island Site Locations.

## 8. GEOARCHAEOLOGICAL EXPLORATIONS

### 8.1 FIELD METHODS

Exploratory testing was conducted in the APE on June 26 and 27, 2009 under the supervision of Far Western Geoarchaeological Specialist Philip Kaijankoski. A hydraulic coring device, known commercially as a “Geoprobe,” was used to explore subsurface deposits for buried archaeological materials. This method has proven successful at identifying buried archaeology sites elsewhere in the San Francisco Bay Area (Kaijankoski 2008; Kaijankoski et al. 2009). The Geoprobe was used as an alternative to mechanical excavation, because of the urban nature of the APE. The exact location of the cores were determined in the field to target where deep impacts are anticipated to occur near past and present bay margins, while avoiding existing underground utilities.

Seven cores were drilled to depths of 4.3 to 5.8 meters (14.1 to 19 feet) below surface to gain a representative sample of the subsurface deposits (Figure 7). Each core was designated according to the numerical sequence it was drilled. The depths, descriptions, and interpretations of each stratum and/or soil horizon identified in each core drilled for this investigation can be found in Appendix A. Due to the nature of Geoprobe sampling, it is reasonable to assume a certain margin of error ( $\pm$  about 0.3 meter [one foot]) for the depths below surface for the stratigraphic contacts presented in Appendix A.

The samples from subsurface deposits were recovered and stored in hard plastic (PVC) liners that were 1.5 meters (five feet) long, with an outer diameter of five centimeters (two inches) and 3.8 centimeter (1.5 inch) inner diameter. The exception to this was core 4 which utilized a thinner core with an outer diameter of 4.4 centimeter (1.75 inch) and a 3.2 centimeter (1.25 inch) inner diameter. Each liner was placed in a single or dual walled push tube that was hydraulically driven to the appropriate depth to capture a continuous core sample for the desired interval. The liners were then extracted from the push tube and labeled to indicate their location, depth interval, and orientation (i.e., top or bottom), with details noted on core logs. All samples were transported to the laboratory at Far Western, where they were stored and allowed to air-dry in a protected place until they could be described and subsampled. When a buried soil was identified in the lab, a portion of that soil was wet screened through 1/8- and 1/16-inch mesh to recover any archaeological materials. Although relatively small, the core samples were large enough to: (1) determine the presence or absence of archaeological materials; and (2) allow determination of the nature and extent of the subsurface deposits. Two samples of organic material (i.e., buried soils) were submitted to Beta Analytic lab in Miami, Florida for radiometric analysis with the results presented in Appendix B.

#### 8.1.1 Stratigraphic Identification and Soil Description

Natural and/or cultural stratigraphy was identified whenever possible by carefully examining the deposits exposed in the cores. Stratigraphic units (strata) were identified on the basis of physical composition, superposition, relative soil development, and/or textural transitions (i.e., upward fining sequences) characteristic of discrete depositional cycles. In the field, each stratum exposed in exploration trenches was assigned a Roman numeral (I, II, III, etc.) beginning with the oldest or lowermost stratum (sometimes bedrock) and ending with the youngest or uppermost stratum. Buried soils (also called paleosols), representing formerly stable ground surfaces, were identified in the field on the basis of color, structure, horizon development, bioturbation, lateral continuity, and the nature of the upper boundary (contact) with the overlying deposit, as described by Birkeland et al. (1991), Holliday (1990), Retallack (1988), and Waters (1992), among others.

Master horizons describe in-place weathering characteristics and were designated by upper-case letters (A, B, C); an R designates solid bedrock. These are preceded by Arabic numerals (2, 3, etc.) when the horizon is associated with a different stratum (i.e., 2Cu); number 1 is understood but not shown. The upper part of a complete soil profile is usually called the A-horizon, with a B-horizon being the zone of accumulation in the middle of a profile, and the C-horizon representing the relatively unweathered parent material in the lower part of a profile. Lower-case letters were used to designate subordinate soil horizons (Table 1).

Combinations of these numbers and letters indicate the important characteristics of each major stratum and soil horizon; they are consistent with those outlined by Birkeland et al. (1991), Schoeneberger et al. (1998),



Figure 7. Core Locations

Table 1. Key for Subordinate Soil Horizons.

SUBORDINATE HORIZONS	DESCRIPTION
p	Disturbed zone (e.g., artificial fill or plow zone)
b	Horizon buried at location where described (not used with C-horizons)
g	Gleying from reduction or removal of iron
ox	Oxidized iron and other materials (subsurface)
t	Illuvial accumulation of silicate clay in the subsurface
u	Unweathered parent material (used only with C-horizons)

and the USDA Soil Survey Staff (1998). Due to the different processes involved in each landform's formation, any one core may contain only a portion of the representative stratigraphy for an area. For this reason, after analyzing all strata indentified in each core, strata of the same geologic origin (ex: bay mud and marsh deposits) were grouped into larger geologic units for the purposes of discussion. These units were designated with an Arabic numeral (1, 2, 3, etc), beginning with the oldest unit identified.

## 8.2 RESULTS AND FINDINGS OF EXPLORATORY TESTING

This section presents the results of geoaerchaeological coring in the APE; describes the age, nature, and extent of the major geologic units identified; discusses the landscape evolution of the project area; and the resulting potential for buried archaeological sites in the APE. An examination of exposed deposits resulted in the identification of five distinct geologic units, as described below in chronological order (Figure 8). These include Franciscan Bedrock (unit 1); a well-developed buried terrestrial soil (unit 2), Late Holocene bay mud and marsh deposits (unit 3), recent alluvium (unit 4), and artificial fill (unit 5).

Geologic unit 1 is the oldest identified in the northern portion of the APE in cores GE4, 6, and 7, and consists of decomposing Franciscan Bedrock (R-horizon). No archaeological materials were found associated with this unit.

Geologic unit 2 is the lowermost unit identified in the southern portion of the APE in cores GE1, 2, 3, and 5. This unit consists of a well-developed terrestrial soil exhibiting a surface (A) horizon of very dark gray clay loam with subangular blocky structure and distinct clay films, grading to a subsurface horizon (Btoxb) of reddish yellow clay loam with similar structure and clay films, underlain by oxidized parent material (BC) of similar color variable clay to sandy clay loam with abrupt textural changes. The nature of the parent material of this unit suggests that it was deposited by a high-energy debris flow. This unit was identified at depths ranging from 3.5 to 4.0 meters (11.5 to 13.1 feet) below surface overlain by aquatic deposits of Unit 3 discussed below; however in core GE 5 the surface of this horizon had been removed by erosion and overlain by Unit 4 also discussed below. The lower boundary of this unit was not encountered in any core. Because the surface horizon to this unit represents a formerly stable terrestrial surface located adjacent to the former bay margin it was selected for wet screening (Table 2), however no archaeological materials were found associated with unit 2. The well-developed soil profile of this unit suggests that it formed the surface of the southern edge of the APE from the Late Pleistocene up to the time of burial. A soil sample collected from the A-horizon of this unit in Core GE3 at a depth of 3.7 to 3.8 meters (12.1 to 12.5 feet) below surface yielded a radiocarbon date of 2960+50 BP, or 3150 cal BP (Beta 262250; Table 3). Given the stratigraphic and radiocarbon evidence, unit 2 represents a substantial period of landform stability followed by submergence and burial by rising sea levels and aquatic sediment deposition during the late Holocene.

Table 2. Wet Screening Results.

CORE NO.	HORIZON	DEPTH SCREENED	COMMENTS
GE1	4Ab	3.5 to 4.0	No archaeological materials recovered
GE2	3Ab	4.0 to 4.4	No archaeological materials recovered
GE3	6Ab	3.8 to 4.4	No archaeological materials recovered

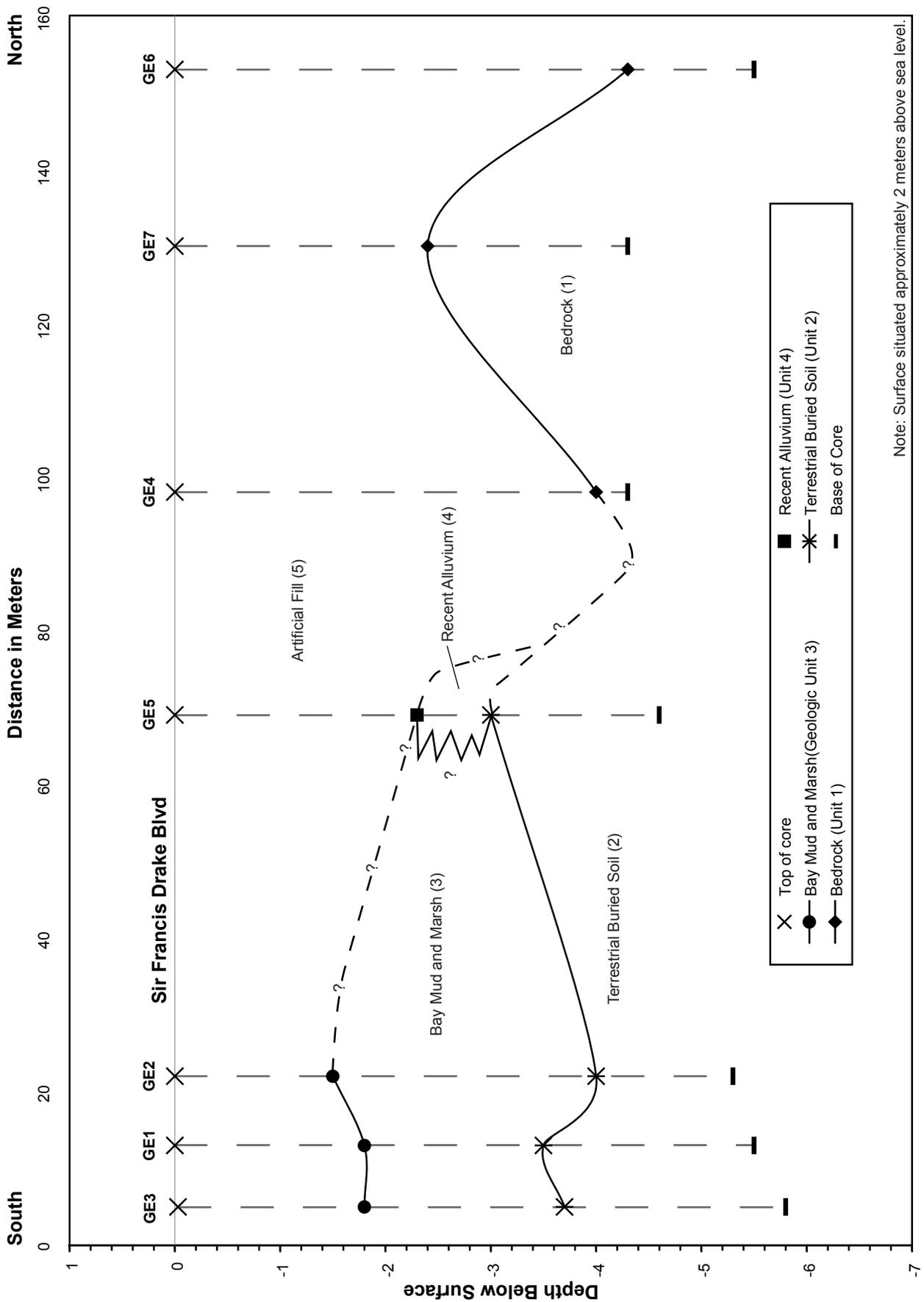


Figure 8. Schematic Cross Section of Project Area looking South.

Table 3. Radiocarbon dating Result from the Greenbrae CMFC Project Area.

CORE NUMBER AND HORIZON SAMPLED	MATERIAL DATED	DEPTH (M)	CRA <sup>14</sup> C BP	MIN. CAL BP	CAL BP	MAX. CAL BP	LAB NO.
Core GE3, Horizon 4Ab	Peat	3.5-3.6	2130+60	2160	2120	2010	Beta-262249
Core GE3, Horizon 6Ab	Soil (SOM)	3.7-3.8	2960+50	3220	3150	3060	Beta-262250

Notes: CRA <sup>14</sup>C BP is the conventional radiocarbon age from lab; cal BP is the central age intercept from the calibration program; minimum/maximum cal BP given at 2-sigma probability (95% confidence); additional information in Appendix B.

Geologic unit 3 consists of bay mud and marsh deposits lacking evidence of near surface weathering. The “open water” bay mud portion of this unit generally consists of gleyed clay with massive structure often containing shellfish in growth position, while marsh deposits within this unit consist of black sandy clay loam with massive structure containing abundant well preserved plant remains. Marsh deposits within bay mud are usually situated at the lower and upper portions of this unit, but sometimes occur as isolated patches within the bay mud representing fluctuating water depths. No archaeological materials were found associated with unit 3. This unit was identified in cores GE1, 2, and 3 at depths ranging from 1.5 to 1.8 meters (4.9 to 5.9 feet) below surface extending to depths of 3.5 to 4.0 meters (11.5 to 13.1 feet) where it was underlain by unit 2. A sample of an isolated marsh deposit in Core GE3 collected at a depth of 3.5 to 3.6 meters (11.5 to 11.8 feet) below surface yielded a radiocarbon date of 2130+60 BP, or 2120 cal BP (Beta-262249). Given the stratigraphic and radiocarbon evidence, unit 3 was formed within bay environments created by rising sea levels inundating the project area during the Late Holocene up to the historic period.

Geologic unit 4 consists of a weakly developed alluvial soil consisting of dark grayish brown clay loam with massive structure. This unit was only identified in core GE5 at depths of 2.3 to 3.0 meters (7.5 to 9.8 feet) below surface where it was underlain by unit 2 that had been truncated by erosion. No archaeological materials were found associated with unit 4. The weakly developed nature coupled with the location of core GE5 immediately north of where bay deposits were encountered, indicates that this unit was formed by alluvial deposition in response to increasing base level due to rising sea level likely during the latest Holocene and historic period.

Geologic unit 5 generally consists of variable color gravely construction fill and/or disturbed natural deposits (Ap). This unit was encountered at the surface in every core extending to depths ranging from 1.5 to 4.0 meters (4.9 to 13.1 feet) below surface. The nature and stratigraphic position of this unit indicate that it is the result of mechanical earth moving activities and artificial filling related to railroad construction. No archaeological materials were found associated with this unit.

### 8.2.1 Summary and Discussion

Overall, the results of this geoarchaeological study show that the project area contains a landform assemblage that can yield information to address important research questions regarding the relationships between human occupation, landscape evolution, climate change, and the resulting structure of the archaeological record. Likely during the late Pleistocene, a high-energy debris flow event deposited the parent material to unit 2 within an existing valley. This was followed by a substantial period of landform stability and soil formation; however, at some point in the recent past stream erosion removed the upper portion of this unit immediately north of SFDB. During the Middle and Late Holocene rising sea levels inundated the southern portion of the project area, depositing bay mud and marsh deposits (unit 3) on top of unit 2. This process continued up to the historic period, which formed a local base level that resulted in the deposition of the weakly developed alluvium of unit 4 in the lowland immediately north of the bay margin (i.e., core GE5). The nature and timing of this depositional sequence is consistent with that identified in Richardson Bay by Connor (1983). Lastly, mechanical earth moving activities and artificial filling related to railroad construction and infilling of the bay for development resulted in the deposition of artificial fill and disturbed deposits of unit 5 that cover the entire surface of the entire APE. As a result even the historic-era surface in the project area remains buried.

### 8.2.2 Potential for Buried Archaeology Sites

Unit 1 is decomposing bedrock that has no potential to contain archaeological materials. The stratigraphic and radiocarbon evidence generated by this study indicates that unit 2 formed a terrestrial surface of the APE south of SFDB for the majority of the Holocene and was buried by aquatic deposits resulting from rising sea levels inundating portions of the APE around 3,000 years ago. As such the surface of this unit did have the potential to contain archaeological materials associated with this former bay margin buried by unit 3. However, given that three cores sampled this surface nearest the former bay margin and wet screening failed to identify any archaeological materials, it is unlikely that an archaeological site is associated with this surface in the APE. The bay mud and marsh deposits of unit 3 were deposited in an aquatic environment and have a low potential to contain archaeological materials. The weakly developed nature and limited extent of unit 4 suggest that it has a low potential to contain archaeological material, however it may overlie such materials. Where this unit was encountered it was underlain by unit 2 that had been truncated by erosion, which indicates a low potential for buried sites. Finally, given that unit 5 is the result of modern earth moving activities this unit has virtually no potential to contain intact archaeological deposits but may overlie such deposits.

## 9. CONCLUSION AND RECOMMENDATIONS

This subsurface geoarchaeological investigation for Phase 1 of the CMFC Project was conducted to determine the presence or absence of buried archaeological materials, and buried soils that are likely to contain such materials, in order to guide future planning and management decisions regarding the need for archaeological work in the APE. This investigation targeted Holocene-age sediments situated near past and present bay margins where project related deep impacts are anticipated. Seven cores were drilled in this area to depths of 4.3 to 5.8 meters (14.1 to 19 feet) below surface. The borings demonstrated that formerly stable land surfaces are present within portions of the APE, and the age of a late Holocene-age buried soil overlain by younger estuary deposits was confirmed through radiocarbon dating. No archaeological materials were identified in any of the core samples even after select buried soils in the cores were wet screened.

This investigation documented that the APE north of SFDB is characterized by artificial and/or disturbed deposits overlying a truncated Pleistocene-age landform or bedrock, indicating that this area is highly unlikely to contain intact archaeological materials. South of SFDB the APE is characterized by artificial fill overlying bay mud and marsh deposits, overlying a well-developed terrestrial landform. As such the surface of the terrestrial landform did have the potential to contain archaeological materials; however, given that three cores sampled this surface nearest the former bay margin and wet screening failed to identify any archaeological materials, it is unlikely that an archaeological site is associated with this surface in the APE. Due to the limited size of the sample recovered for this investigation (5.0 to 4.4 centimeter diameter soil cores), it is still possible that small, sparse, and/or isolated buried prehistoric archaeological materials may yet be associated with the buried Holocene-age soil underlying the APE south of SFDB. The findings of this study suggest, however, that this possibility is low.

Consequently, no further archaeological studies or investigations are recommended at this time, including archaeological monitoring, in the area covered by this study.

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**APPENDIX A**  
**CORE DESCRIPTIONS**



## Appendix A. Core Descriptions

Core No.	Horizon Depth (m)	Geologic Unit	Strata (Horizons) Description	Interpretations
GE1	0 to 1.8	5	IV (Ap) Variable color gravelly loam; abrupt lower contact.	Artificial fill
	1.8 to 2.7	3	III (2Cg) Very dark gray (5GY N3/, moist) clay; massive structure; very firm consistency; abrupt lower contact.	Open water bay mud
	2.7 to 3.5	3	II (3Agb) Black (5GY N2.5/, moist) sandy clay loam; massive structure; firm consistency; common shells and undecomposed plant remains; gradual lower contact.	Marsh deposit
	3.5 to 4.0	2	I (4Ab) Very dark gray (7.5 YR 3/1, moist) clay loam; subangular blocky structure; very firm consistency; distinct clay films on ped faces and coating and bridging grains; common root holes with redoximorphic lining coating pores; gradual lower contact.	Surface horizon to well-developed buried terrestrial soil
	4.0 to 4.6	2	I (4Btox) Reddish yellow (7.5YR 6/8, moist) clay loam; subangular blocky structure; extremely firm consistency; distinct clay films on ped faces and coating and bridging grains; common, medium, prominent redoximorphic features, gradual lower contact.	Subsurface horizon to well developed buried soil
	4.6 to 5.5	2	I (4BCox) Reddish yellow (7.5YR 7/6, moist) clay to sandy clay loam; subangular blocky structure; firm consistency; faint clay films coating grains; abundant, medium, prominent redoximorphic features.	Parent material to buried soil
GE2	0 to 1.5	5	III (Ap) Angular gravel fill; abrupt lower contact.	Artificial fill
	1.5 to 4.0	3	II (2Agb) Black (5GY N2.5/, moist) sandy clay loam; massive structure; firm consistency; abundant undecomposed plant remains; gradual lower contact.	Marsh deposit
	4.0 to 4.4	2	I (3Ab) Very dark gray (7.5 YR 3/1, moist) clay loam; subangular blocky structure; very firm consistency; distinct clay films on ped faces and coating and bridging grains; common root holes with redoximorphic lining coating pores; gradual lower contact.	Surface horizon to well-developed buried terrestrial soil
	4.4 to 5.0	2	I (3Btox) Reddish yellow (7.5YR 6/8, moist) clay loam; subangular blocky structure; extremely firm consistency; distinct clay films on ped faces and coating and bridging grains; common, medium, prominent redoximorphic features, gradual lower contact.	Subsurface horizon to well developed buried soil
	5.0 to 5.3	2	I (3BCox) Reddish yellow (7.5YR 7/6, moist) clay to sandy clay loam; subangular blocky structure; firm consistency; faint clay films coating grains; abundant, medium, prominent redoximorphic features.	Parent material to buried soil
GE3	0 to 1.8	5	VI (Ap) Angular gravel fill; abrupt lower contact.	Artificial fill
	1.8 to 3.0	3	V (2Cg) Very dark gray (5GY N3/, moist) clay; massive structure; very firm consistency; few shells throughout; clear lower contact.	Open water bay mud
	3.0 to 3.5	3	IV (3Cg) Gray (5GY N6/, moist) sandy clay loam; massive structure; abrupt lower contact.	Near shore sediments
	3.5 to 3.6	3	III (4Ab) Black (5GY N2.5/, moist) silty clay; massive structure; firm consistency; abundant undecomposed plant remains; gradual lower contact. Sample of 4Ab soil (peat) radiocarbon dated to 2130 $\pm$ 60 BP, or 2120 cal BP (Beta-262249).	Marsh deposit
	3.6 to 3.65	3	III (4C) Gray (5GY N6/, moist) sand; single grain structure, abrupt lower contact.	near shore sediments
	3.65 to 3.7	3	II (5Ab) Black (5GY N2.5/, moist) silty clay; massive structure; firm consistency; abundant undecomposed plant remains; gradual lower contact.	Marsh deposit

## Appendix A. Core Descriptions

Core No.	Horizon Depth (m)	Geologic Unit	Strata (Horizons) Description	Interpretations
	3.7 to 4.4	2	I (6Ab) Very dark gray (7.5 YR 3/1, moist) clay loam; subangular blocky structure; very firm consistency; distinct clay films on ped faces and coating and bridging grains; common root holes with redoximorphic lining coating pores; gradual lower contact. Sample of 6Ab soil radiocarbon dated to 2960 <sub>+50</sub> BP, or 3150 cal BP (Beta-262250).	Surface horizon to well-developed buried terrestrial soil
	4.4 to 5.8	2	I (6Btox) Reddish yellow (7.5YR 7/6, moist) sandy clay loam; subangular blocky structure; firm consistency; faint clay films coating grains; abundant, medium, prominent redoximorphic features.	Subsurface horizon to well developed buried soil
GE4	0 to 4.0	5	II (Ap) Angular gravel fill; abrupt lower contact.	Artificial fill
	4.0 to 4.3	1	I (2R) Decomposing Franciscan bedrock	Bedrock
GE5	0 to 2.3	5	III (Ap) Angular gravel fill; abrupt lower contact.	Artificial fill
	2.3 to 3.0	4	II (2Ab) Dark grayish brown (10YR 4/2, moist) clay loam; massive structure; very firm consistency; abrupt lower contact.	Weakly developed alluvial soil
	3.0 to 4.6	2	I (3BCox) Reddish yellow (7.5YR 7/6, moist) clay to sandy clay loam; subangular blocky structure; firm consistency; faint clay films coating grains; abundant, medium, prominent redoximorphic features.	Parent material to truncated older landform
GE6	0 to 2.0	5	III (Ap) Angular gravel fill; abrupt lower contact.	Artificial fill from parking lot construction
	2.0 to 4.3	5	II (Ap) mixed brown to very dark grayish brown clay to sandy clay loam; massive structure; abrupt lower contact.	Disturbed natural deposits
	4.3 to 5.5	1	I (3R) Decomposing Franciscan bedrock	Bedrock
GE7	0 to 2.4	5	II (Ap) Angular gravel fill; abrupt lower contact.	Artificial fill
	2.4 to 4.3	1	I (2R) Decomposing Franciscan bedrock	Bedrock

**APPENDIX B**  
**RADIOCARBON RESULTS**





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**Darden Hood**  
President

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**Christopher Patrick**  
Deputy Directors

August 21, 2009

Dr. William Hildebrandt/Liz Honeysett  
Far Western Anthropological Research Group, Incorporated  
2727 Del Rio Place  
Suite A  
Davis, CA 95618  
USA

RE: Radiocarbon Dating Results For Samples GE3-350-360, GE3-370-380

Dear Dr. Hildebrandt and Ms. Honeysett:

Enclosed are the radiocarbon dating results for two samples recently sent to us. They each provided plenty of carbon for accurate measurements and all the analyses proceeded normally. As usual, the method of analysis is listed on the report with the results and calibration data is provided where applicable.

As always, no students or intern researchers who would necessarily be distracted with other obligations and priorities were used in the analyses. We analyzed them with the combined attention of our entire professional staff.

If you have specific questions about the analyses, please contact us. We are always available to answer your questions.

The cost of analysis was previously invoiced. As always, if you have any questions or would like to discuss the results, don't hesitate to contact me.

Sincerely,

Digital signature on file



# REPORT OF RADIOCARBON DATING ANALYSES

Dr. William Hildebrandt/Liz Honeysett

Report Date: 8/21/2009

Far Western Anthropological Research Group,  
Incorporated

Material Received: 7/27/2009

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 262249 SAMPLE : GE3-350-360 ANALYSIS : Radiometric-Standard delivery MATERIAL/PRETREATMENT : (peat): acid/alkali/acid 2 SIGMA CALIBRATION : Cal BC 370 to 10 (Cal BP 2320 to 1960)	2030 +/- 60 BP	-18.9 o/oo	2130 +/- 60 BP
Beta - 262250 SAMPLE : GE3-370-380 ANALYSIS : Radiometric-Standard delivery MATERIAL/PRETREATMENT : (organic sediment): acid washes 2 SIGMA CALIBRATION : Cal BC 1370 to 1340 (Cal BP 3320 to 3290) AND Cal BC 1320 to 1010 (Cal BP 3270 to 2960)	2910 +/- 50 BP	-21.4 o/oo	2960 +/- 50 BP

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "\*\*". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.

# CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-18.9:lab. mult=1)

**Laboratory number: Beta-262249**

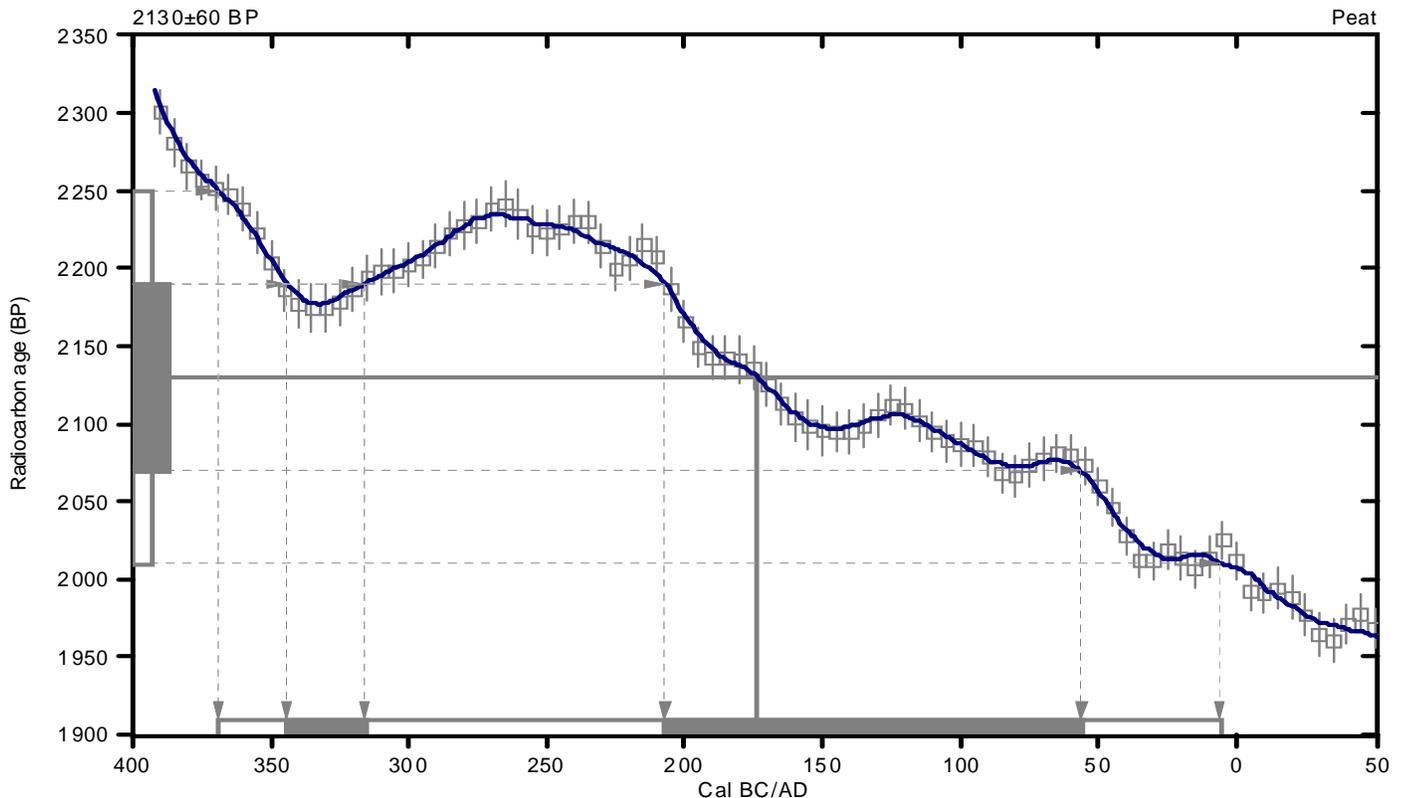
**Conventional radiocarbon age: 2130±60 BP**

**2 Sigma calibrated result: Cal BC 370 to 10 (Cal BP 2320 to 1960)  
(95% probability)**

Intercept data

Intercept of radiocarbon age  
with calibration curve: Cal BC 170 (Cal BP 2120)

1 Sigma calibrated results: Cal BC 340 to 320 (Cal BP 2290 to 2270) and  
(68% probability) Cal BC 210 to 60 (Cal BP 2160 to 2010)



## References:

### Database used

INTCAL04

### Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

### Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

## Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

# CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.4:lab. mult=1)

**Laboratory number: Beta-262250**

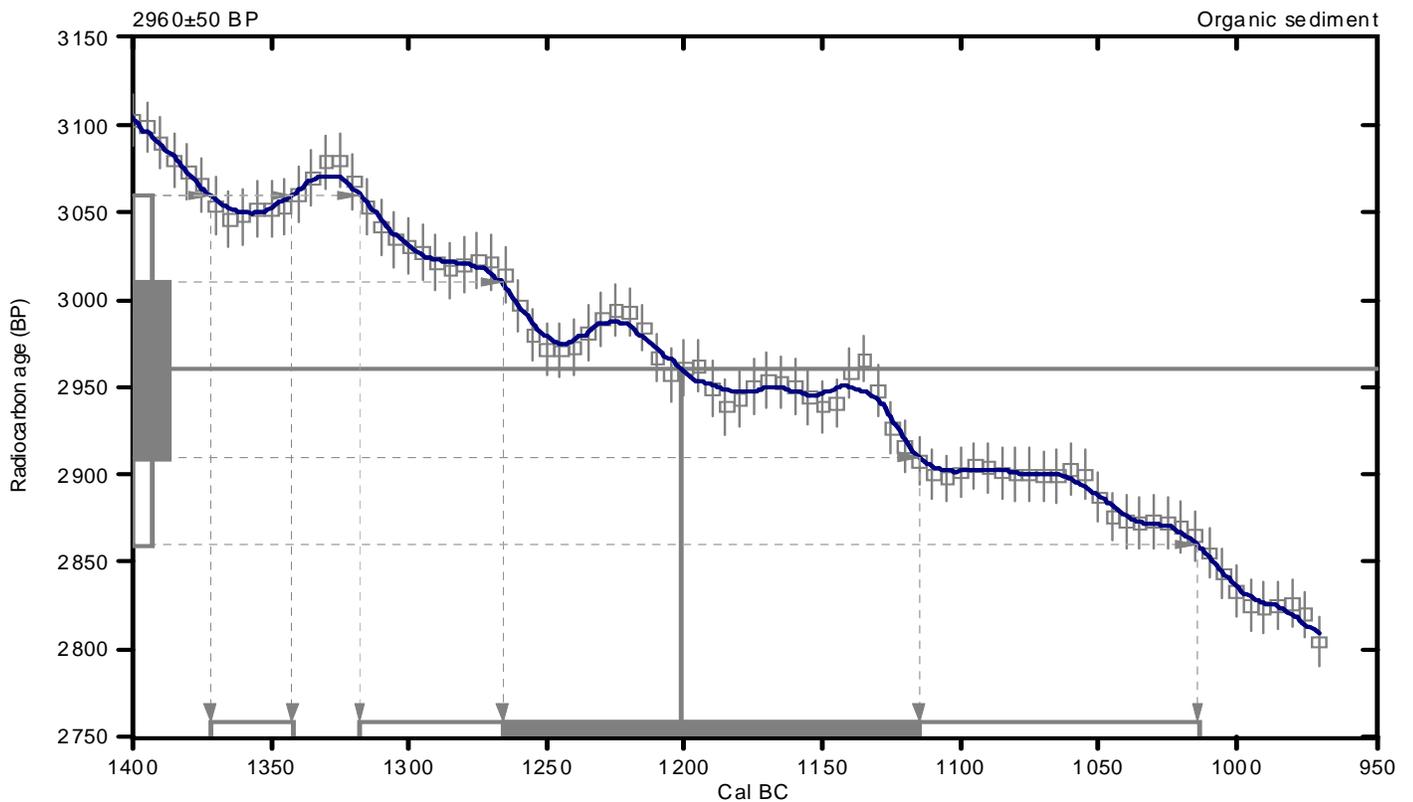
**Conventional radiocarbon age: 2960±50 BP**

**2 Sigma calibrated results: Cal BC 1370 to 1340 (Cal BP 3320 to 3290) and  
(95% probability) Cal BC 1320 to 1010 (Cal BP 3270 to 2960)**

Intercept data

Intercept of radiocarbon age  
with calibration curve: Cal BC 1200 (Cal BP 3150)

1 Sigma calibrated result: Cal BC 1270 to 1120 (Cal BP 3220 to 3060)  
(68% probability)



## References:

### *Database used*

*INTCAL04*

### *Calibration Database*

*INTCAL04 Radiocarbon Age Calibration*

*IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).*

### *Mathematics*

*A Simplified Approach to Calibrating C14 Dates*

*Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322*

## Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

TAM

Transportation Authority of Marin

Central Marin Ferry Connection

Phase 1 Project

Marin County, California

COMMUNITY IMPACT ASSESSMENT

TECHNICAL MEMORANDUM

Version 2, April 2010

TAM Project No.: C-FY05/06-007

Jacobs Carter Burgess Project No.: CB701729

SUBMITTED BY: \_\_\_\_\_



Sandy Beazley, Jacobs Carter Burgess

\_\_\_\_\_  
April 28, 2010

Date

REVIEWED BY: \_\_\_\_\_

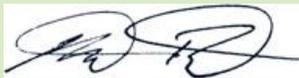


Lauren Abom, Jacobs Carter Burgess

\_\_\_\_\_  
April 28, 2010

Date

APPROVED BY: \_\_\_\_\_



Kai Chan, Jacobs Carter Burgess

For \_\_\_\_\_

\_\_\_\_\_  
April 28, 2010

Date



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## Executive Summary

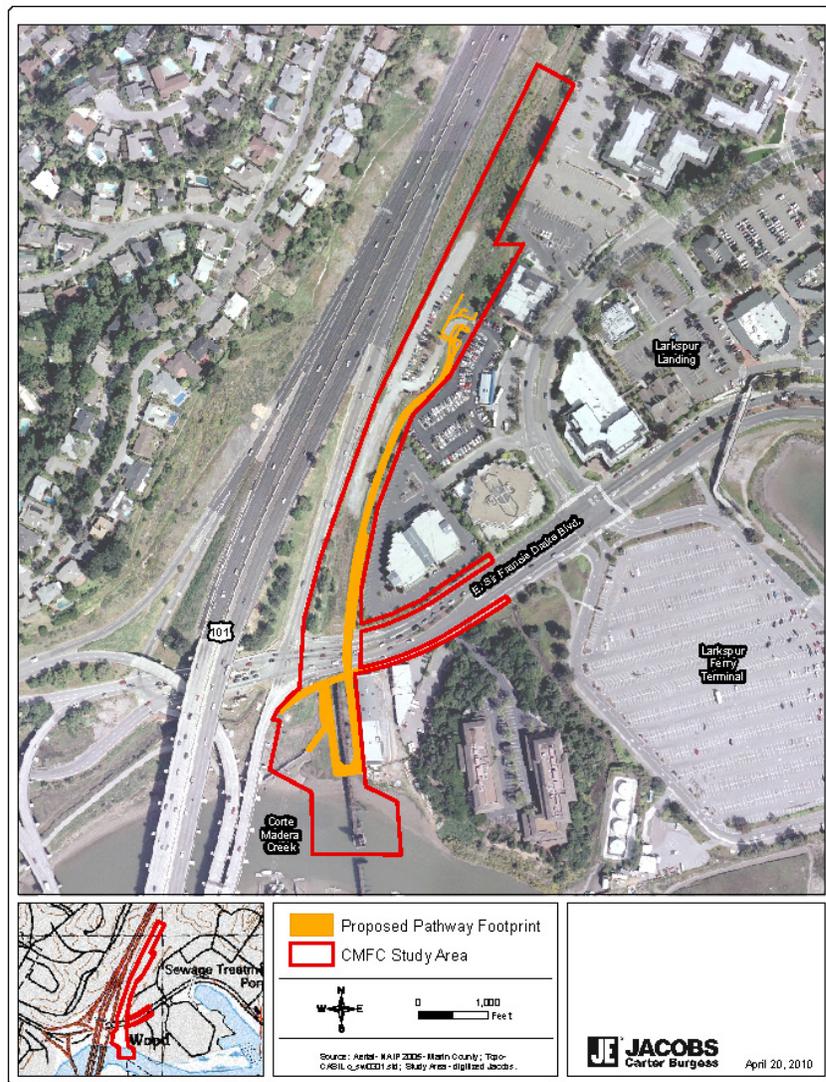
Jacobs Carter Burgess conducted a Community Impact Assessment to address the socioeconomic and community level effects resulting from the proposed project. Analysis included an overview of existing and future land use, consistency with local and regional plans, existing social and economic infrastructure, community and neighborhood characteristics, community and public facilities and environmental justice. The analysis concluded that, there would be no adverse community impacts resulting from the Central Marin Ferry Connection project. As such no mitigation is recommended pertaining to community impacts. The benefits of the proposed project include:

- Neither conflict nor preclude any elements of the Marin Countywide Plan, the City of Larkspur General Plan, the Marin County Unincorporated Area Bicycle and Pedestrian Master Plan and the City of Larkspur Bicycle Transportation Plan.
- Increase the overall connectivity of communities, allowing citizens increased mobility and access via the use of alternative modes of travel.
- Provide a net benefit to all communities in the study area due to increased mobility, safety and access.

# 1 Purpose

The purpose of this technical memorandum is to provide the Transportation Authority of Marin (TAM) and the public with information about the socioeconomic and community-level effects of the Central Marin Ferry Connection Project (CMFC or proposed project). Analysis will include an overview of existing and future land use, consistency with local and regional plans, existing social and economic infrastructure, community and neighborhood characteristics, community and public facilities, and environmental justice. In addition, the potential impacts, both adverse and beneficial, will be discussed. The project limit and proposed alignment for the CMFC Project is shown in Figure 1.

Figure 1: Project Limit and Proposed Alignment



For purposes of this technical memorandum, and per Federal Highway Administration (FHWA) guidance, a community is defined in part by behavioral patterns that individuals or groups of individuals hold in common. These behavioral patterns are expressed through daily social interactions, the use of local facilities, participation in local organizations, and involvement in activities that satisfy the population's economic and social needs. A community can also be defined by shared perceptions or attitudes, typically expressed through individual's identification with, commitment to, and attitude towards a particular identifiable area. In addition, there are other concepts of community that are not based on spatial relationships. Communities may be based on a common characteristic or interest, such as religion, ethnicity, income strata, or concern for the viability of a region, which provides a psychological unity among members.<sup>1</sup> For the purposes of the assessment, a Community Impact Assessment (CIA) selects the most apparent form of community within the project area and studies the potential impacts the proposed project will have on that community.

---

<sup>1</sup> FHWA. Community Impact Assessment: A Quick Reference for Transportation. September 1996.

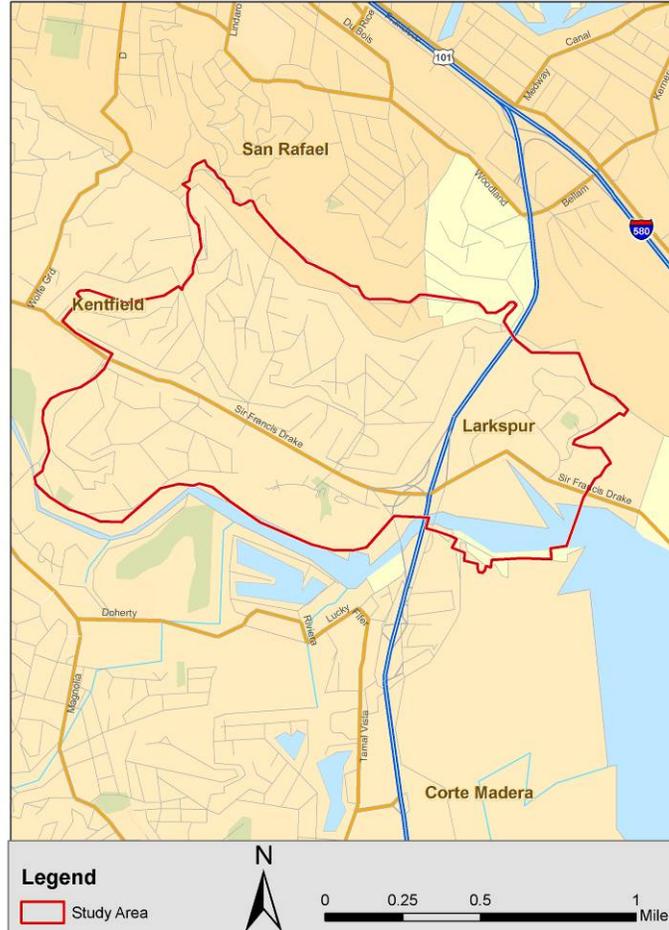
## 2 Project Description

### 2.1 Project Location

The proposed project is a multi use path located in Larkspur within Marin County, California.<sup>2</sup> The proposed project encompasses an area of approximately 6.188 acres at and adjacent to the Sir Francis Drake Boulevard and U.S. Highway 101 interchange. The proposed project would occur in the city of Larkspur within the San Rafael 7.5-minute United States Geological Survey (USGS) Quadrangle.

While construction activity associated with the CMFC is limited to the east side of U.S. Highway 101, the study area (Figure 2) includes portions both east and west of the highway to adequately capture the diverse mix of land uses and populations that may be affected by the proposed project.

**Figure 2: Study Area**



<sup>2</sup> Project description provided by Jacobs/MSA, December 15, 2008.

## 2.2 Project Background

The project's goal is to create a new multi-use pathway intended to further promote non-motorized commute alternatives and enhanced recreational travel. The pathway will be located generally within the Sonoma Marin Area Rail Transit (SMART) right-of-way and generally follow the County's north-south greenway. The proposed project is of vital importance to central Marin as it will provide safe, direct, and convenient pedestrian/bicycle access between local transit facilities such as the future SMART Larkspur Station and the existing Larkspur Ferry Terminal, as well as access to schools, business centers, and residential communities.

## 2.3 Project Description

The Transportation Authority of Marin (TAM) is proposing to construct a new multi-use pathway intended to further promote non-motorized commute alternatives and enhanced recreational travel within the City of Larkspur in Marin County, California. TAM plans to construct the project in two phases. The pathway would generally follow the County's north-south greenway. Phase I of the proposed project, and the scope of this proposed project, would construct a multi-use pathway adjacent to the east side of U.S. Highway 101 from post mile (PM) 14.7 to PM 15.3 that would include an overcrossing above East Sir Francis Drake Boulevard (East SFDB) and connect to the existing multi-use pathway located south of East SFDB. Phase I would connect to the southern limit of the Cal Park Hill Tunnel Rehabilitation and Path Project to the north, which is currently under construction. Phase II of the proposed project would extend the Phase I multi-use pathway to the south along the east side of U.S. Highway 101 to Wornum Drive and include an overcrossing above Corte Madera Creek and provide access to the Greenbrae Boardwalk. Once completed, the entire Central Marin Ferry Connection (CMFC) project (i.e., Phases I and II) would provide a continuous multi-use pathway from the Cal Park Hill Tunnel and the future Sonoma Marin Area Rail Transit (SMART) Larkspur Station in the north to Wornum Drive in the south.

Phases I and II of the proposed project have independent utility with respect to each other because each would serve their own purpose and would occur regardless of whether the other phase was to occur. The independent utility analysis does not include the Cal Park Hill Tunnel Rehabilitation and Path Project because it is under construction and constitutes an existing condition.

The proposed project would include the following construction activities for Phase I:

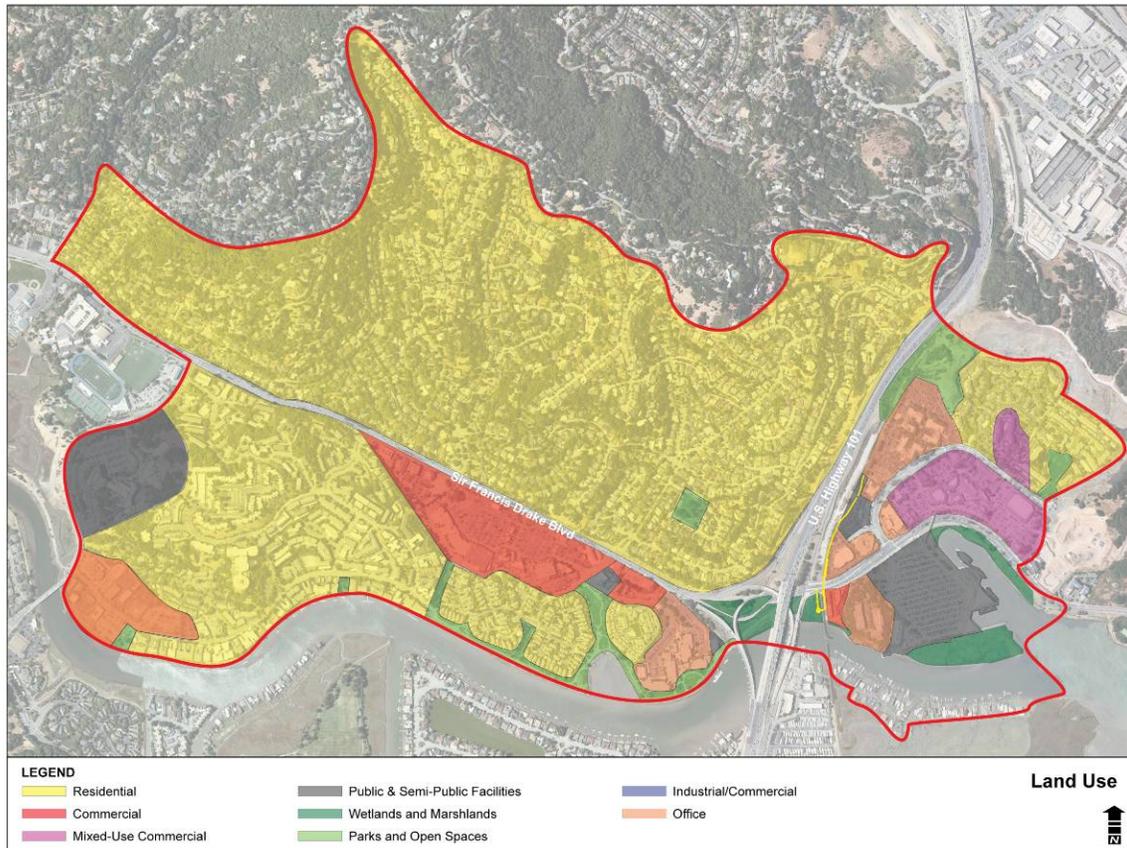
- Conduct a geotechnical survey;
- Construct a new multi-use pathway that extends from the existing Cal Park Hill Tunnel Pathway to East SFDB;
- Construct a new multi-use pathway overcrossing structure and approach ramps at East SFDB;

- Construct a new access ramp from the sidewalk on the north side of East SFDB to the new overcrossing;
- Construct an approach ramp for the multi-use path south of East SFDB with viewing areas above the salt marsh area and Corte Madera Creek;
- Construct a new access ramp that conforms to the existing multi-use paths and repave the existing multi-use pathway south of East SFDB from the Highway 101 northbound off ramp structure to the Larkspur Ferry Terminal entrance;
- Construct retaining walls at various locations along the multi-use path;
- Construct new sidewalks, curbs, and gutters along East SFDB;
- Install signage, striping, lighting, screening, handrails, fencing, landscaping, truncated domes and/or bollards;
- Construct stormwater swales and detention basins;
- Remove or retrofit all or a portion of the existing railroad trestle;
- Relocate and protect existing utilities; and
- Construct access areas within the salt marsh and Corte Madera Creek.

### **3 Land Use**

There is a high degree of urbanization within the study area, creating a diverse mix of land uses, including residential, commercial and public services (Figure 3). U.S. Highway 101 is the primary travel route through the study area. The majority of commercial activity, as well as the Larkspur Landing Ferry Terminal, are located adjacent to Sir Francis Drake Boulevard, an arterial with direct access to U.S. Highway 101. Neighborhoods are dispersed throughout the study area and include a mixed of established neighborhoods and new developments.

**Figure 3: Existing Land Use**



### 3.1 Existing Land Use Patterns

The following descriptions pertain to land uses based on the quadrants of the U.S. Highway 101/Sir Francis Drake Boulevard interchange.

The northeast quadrant, the site of the majority of the proposed construction activity, is a combination of residential, commercial and mixed-use commercial properties. This area comprises the planned development of Larkspur Landing Circle, future SMART station and CAL Park Hill Tunnel.

The southeast quadrant is dominated by the Larkspur Landing Ferry Terminal, a facility with approximately 2,000 parking spaces and an annual ferry ridership exceeding 1.4 million.<sup>3</sup> The Greenbrae Boardwalk community, a residential enclave, as well as a mixed-use area with industrial and commercial lands, is found here. Marshland and wetlands are both present along Corte Madera Creek.

<sup>3</sup> Golden Gate Ferry. <http://www.goldengateferry.org/researchlibrary/statistics.php>. Accessed January 6, 2009+

The southwest quadrant is a mix of residential, commercial and office uses. The Bon Air neighborhood is located along Corte Madera Creek and a majority of the commercial land uses are found adjacent to Sir Francis Drake Boulevard. Additionally, marshland and wetlands are both present along Corte Madera Creek.

The northwest quadrant is comprised entirely of the Greenbrae neighborhood. Part of this neighborhood falls within unincorporated Marin County and the other part within the City of Larkspur. The neighborhood consists primarily of single-family homes.

### **3.2 Developable Land and Development Trends**

According to the Association of Bay Area Government's (ABAG) *Projections 2007*, Marin County is expected to gain 13,620 households between 2005 and 2035. The City of Larkspur is anticipated to increase its households by 28 percent, resulting in an additional 1,700 households between 2005 and 2035. However, current economic decline could have an impact on these projections.

In the year 2000, the *City of Larkspur General Plan* reported 8,780 housing units in the city, which was expected to grow by six percent to 9,700 households in 2020. Unlike any other city in Marin County, the majority of housing in Larkspur is multi-family rather than single-family, 56 and 44 percent, respectively.

### **3.3 Plans and Policies**

Land use in the study area is governed by both the *Marin Countywide Plan* and the *City of Larkspur General Plan*. In addition, other relevant planning documents include the *Marin County Unincorporated Area Bicycle and Pedestrian Master Plan* and the *City of Larkspur Bicycle Transportation Plan*.

#### **3.3.1 Marin Countywide Plan**

The Marin Countywide Plan, first adopted in 1973, was revised and adopted by the Board of Supervisors on November 6, 2007. The transportation element of the *Marin Countywide Plan Update* provides important policies, such as reducing dependency on the automobile. Strategies to achieve this include coordination of residential and commercial development with the transit system and transportation network. The four major transportation goals within the plan, and policies and implementation strategies pertinent to the CMFC, are detailed in Table 1.

**Table 1: Applicable Plans and Policies of the Marin Countywide Plan**

<b>Transportation Goals</b>
<b>Goal TR-1:</b> Safe and Efficient Movement of People and Goods: Provide a range of transportation options that meet the needs of residents, businesses, and travelers.
Policy TR-1.8: Reduce Vehicle Miles Traveled (VMT): Reduce the rate of increase for total vehicle miles traveled by single-occupant automobile to not exceed the population growth rate.
<b>Goal TR-2:</b> Increased Bicycle and Pedestrian Access: Expand bicycle and pedestrian facilities and access in and between neighborhoods, employment centers, shopping areas, schools, and recreational sites.
Policy TR-2.1: Improve the Bicycle and Pedestrian Network: Promote adequate bicycle and pedestrian links, to the extent feasible, throughout the county, including streetscape improvements and standards that are safe and pedestrian and bicycle friendly.
Policy TR-2.2: Provide New Bicycle and Pedestrian Facilities: Where appropriate, require new development to provide trails or roadways and paths for use by bicycles and/or on-street bicycle and pedestrian facilities. In-lieu fees may be accepted if warranted in certain cases.
<b>Goal TR-3:</b> Adequate and Affordable Public Transportation: Provide efficient, affordable public transportation service countywide that meets the needs of everyone, including the elderly, disabled, and transit dependent.
Policy TR-3.3 Develop Mixed-Use Intermodal Hubs: Support and participate in the development of intermodal transit hubs that expand alternative transportation use.
Policy TR-3.5 Support Bicycle Access to All Transit Systems: Ensure that all new and existing transit systems provide for the storage of bicycles on transit as well as at transit centers.
<b>Goal TR-4:</b> Protection of Environmental Resources: Minimize environmental disruption and energy use related to transportation.
Policy TR-4.1 Minimize Disturbance and Condemnation: Limit environmental disruption and condemnation of land due to transportation projects.
Source: Marin Countywide Plan (2007)

Although not outlined within specific goals or policies, the *Marin Countywide Plan*, when providing guidance for community design and community development, notes the equity, sense of place, community cohesion and health benefits of a connected and utilized bicycle-friendly infrastructure.

### 3.3.2 City of Larkspur General Plan

The *City of Larkspur General Plan*, originally adopted in 1972, was most recently revised in November of 1990. The plan strives to preserve historic character and neighborhood scale while at the same time promoting more mixed-use developments. Within the plan are land use and transportation elements, which are applicable to the CMFC. These can be found in Table 2.

**Table 2: Applicable Plans and Policies of the Larkspur General Plan**

<b>Land Use Goals</b>
<b>Goal 6:</b> Encourage existing commercial districts (1) to provide an adequate mix of neighborhood-serving businesses, and (2) to be accessible by means other than the auto.
<b>Circulation Goals</b>
<b>Goal 2:</b> Provide safe and efficient local-serving transportation facilities and services for the movement of people and goods.
Policy a: Develop a coordinated system of roads, bike paths, foot paths, public transit, and Transportation Demand Management (TDM) programs.
<b>Goal 5:</b> Encourage attractive alternatives to the use of single-occupant automobiles.
<b>Goal 7:</b> Aim for lower levels of peak hour automobile traffic.
<b>Trails and Paths</b>
<b>Goal 1:</b> Make it easier to travel around Larkspur by non-motorized transportation modes.
Policy a: Develop a comprehensive and coordinated trails and paths system that serves both recreational and utilitarian travel.
Policy b: Fill gaps in the existing path system.
<b>Goal 2:</b> Provide safe bicycle and pedestrian routes for all users, to schools, shopping and business areas, recreation facilities, open space preserves, and other communities, and associated amenities.
Policy e: Locate and design pedestrian and bike trails separate from streets and automobile traffic wherever possible. Designate on-street bike lanes where off-road paths are not possible.
<b>Goal 3:</b> Coordinate existing and planned bicycle and pedestrian routes with the circulation plans of neighboring communities and the County.
Policy h: Pursue the potential temporary use of the NWP right-of-way east of Highway 101 for use as a pedestrian and/or bicyclist trail until its use as a transit-way.
<b>Goal 4:</b> Reduce the need for long distance and/or frequent shopping travel by private automobile.
Policy k: Encourage means of travel to and between retail areas other than by private automobile.
<b>Goal 7:</b> Reduce the number and severity of transportation-related accidents.
Policy r: Provide bicyclists and pedestrians with safe facilities for circulation.
Source: City of Larkspur General Plan (1990)

### 3.3.3 Marin County Unincorporated Area Bicycle and Pedestrian Master Plan

Marin County’s *Bicycle and Pedestrian Master Plan* was adopted in 2001 and is intended to be a 20 year guideline for the unincorporated areas of Marin County. A major goal is making the bicycle an “integral part of daily life in Marin County, particularly for trips of less than five miles, by implementing and maintaining a bikeway network, providing end-of-trip facilities, improving bicycle/transit integration, encouraging bicycle use, and making bicycling safer and more convenient.”<sup>4</sup>

<sup>4</sup> Marin County Unincorporated Area Bicycle and Pedestrian Master Plan. June 2001

### 3.3.4 City of Larkspur Bicycle Transportation Plan

Larkspur's *Bicycle and Pedestrian Master Plan* was adopted in August 2004. A major element of the plan is multi-modal connections. The CMFC project is specifically called out as one of seven "Priority 1" projects for the City.

## 3.4 Farmland

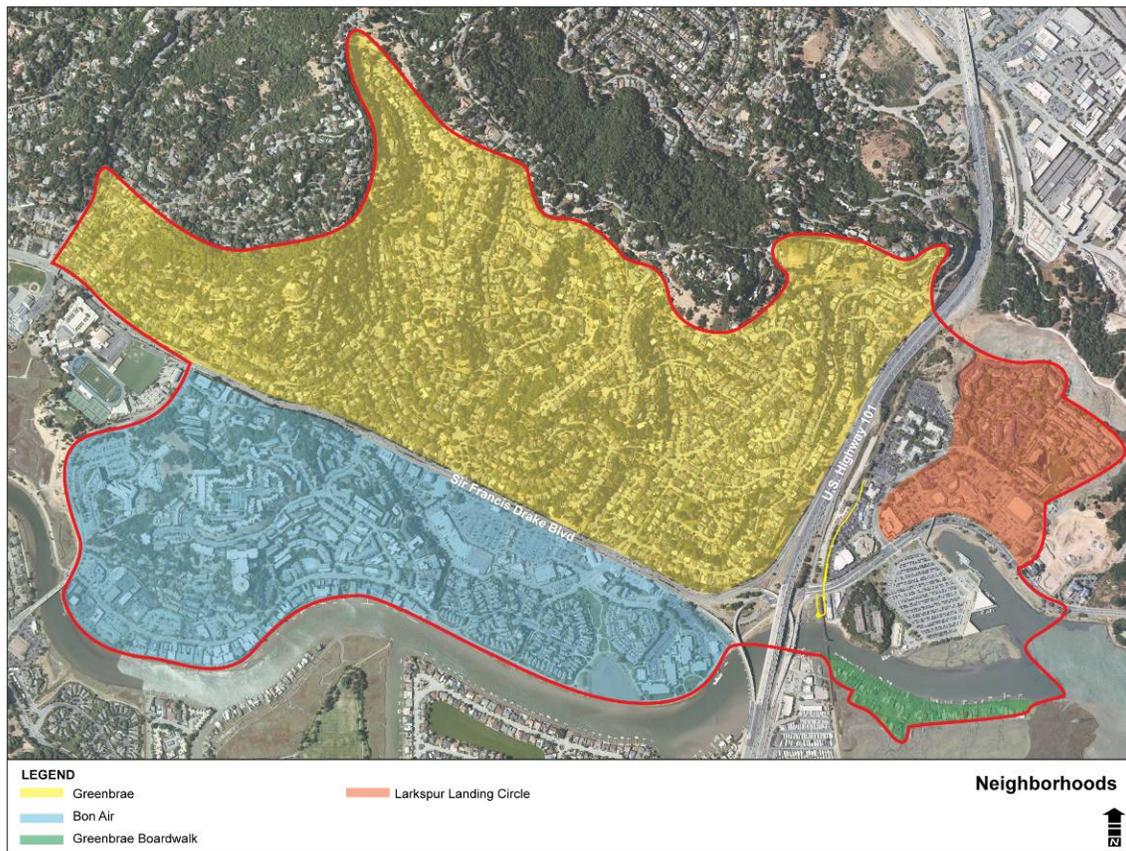
There is no prime or unique farmland within the study area.

# 4 Social Environment

## 4.1 Community and Neighborhood Characteristics

The study area includes portions of neighborhoods within the planning subareas of the City of Larkspur and unincorporated Marin County (Figure 4).

**Figure 4: Neighborhoods**



The Greenbrae Boardwalk is a residential enclave perched upon pilings above a salt marsh. The 49 homes are accessible only by foot or bicycle and arrayed in a linear fashion along the boardwalk.

These homes are bordered by the Corte Madera Creek, the Corte Madera Marsh Ecological Reserve and Highway 101.

The Bon Air neighborhood consists of two single-family residential developments, the Bon Air Shopping Center, and commercial offices with access to Sir Francis Drake Boulevard, U.S. Highway 101 and Corte Madera Creek.

The neighborhood of Greenbrae spans two municipalities. The southwestern portion is located within unincorporated Marin County, while the northeastern half lies within the limits of Larkspur. This neighborhood is primarily single-family ranch style homes surrounded by mature landscaping.

Larkspur Landing Circle is an area of multi-family developments that lie between other commercial uses including office buildings, a hotel, and a regional-specialty shopping center. This neighborhood offers a variety of services, employment opportunities, excellent transportation, and other amenities such as views of both mountains and water.

## **4.2 Social Characteristics**

### **4.2.1 Population**

In 2000, the population within the study area totaled approximately 6,300 persons, containing approximately 2.5 percent of Marin County's 247,289 residents.<sup>5</sup> Growth forecasts do not exist for the study area, but according to the ABAG Projection 2007, Marin County is expected to gain 13,620 households by 2035 and the City of Larkspur is expected to gain an additional 1,700 households by 2035.

The 2000 *City of Larkspur General Plan* notes a total of 8,780 housing units within the City. The City anticipates a 6 percent growth rate, resulting in a total of 9,700 households by the year 2020.

### **4.2.2 Race and Ethnicity**

The ethnic characteristics within the study area, presented in Table 3, reflect a predominantly Caucasian population. Neither the study area as a whole, nor the individual block groups within the study area, indicate the presence of Environmental Justice communities (see *Environmental Justice*).

---

<sup>5</sup> US Census Bureau. 2000

**Table 3: Distribution of Area Populations (%)**

Area	Percentage of Total Number of Persons (%)							
	White	Black or African American	American Indian or Alaska native	Asian	Native Hawaiian or Other Pacific Islander	Other Races	Two or More Races	Hispanic or Latino of Any Race
Marin County	78.6	2.8	0.3	4.5	0.1	0.3	2.4	11.1
City of Larkspur	88.4	0.8	0.2	3.9	0.1	0.2	2.2	4.3
Study Area	88.4	0.8	0.2	3.9	0.1	1.1	2.6	4.3

Source: U.S. Census Bureau 2000

#### 4.2.3 Income

Income analysis and poverty status is detailed in Table 4. Neither the study area as a whole, nor the individual block groups within the study area, indicate the presence of Environmental Justice communities (see *Environmental Justice*).

**Table 4: Selected Income Characteristics**

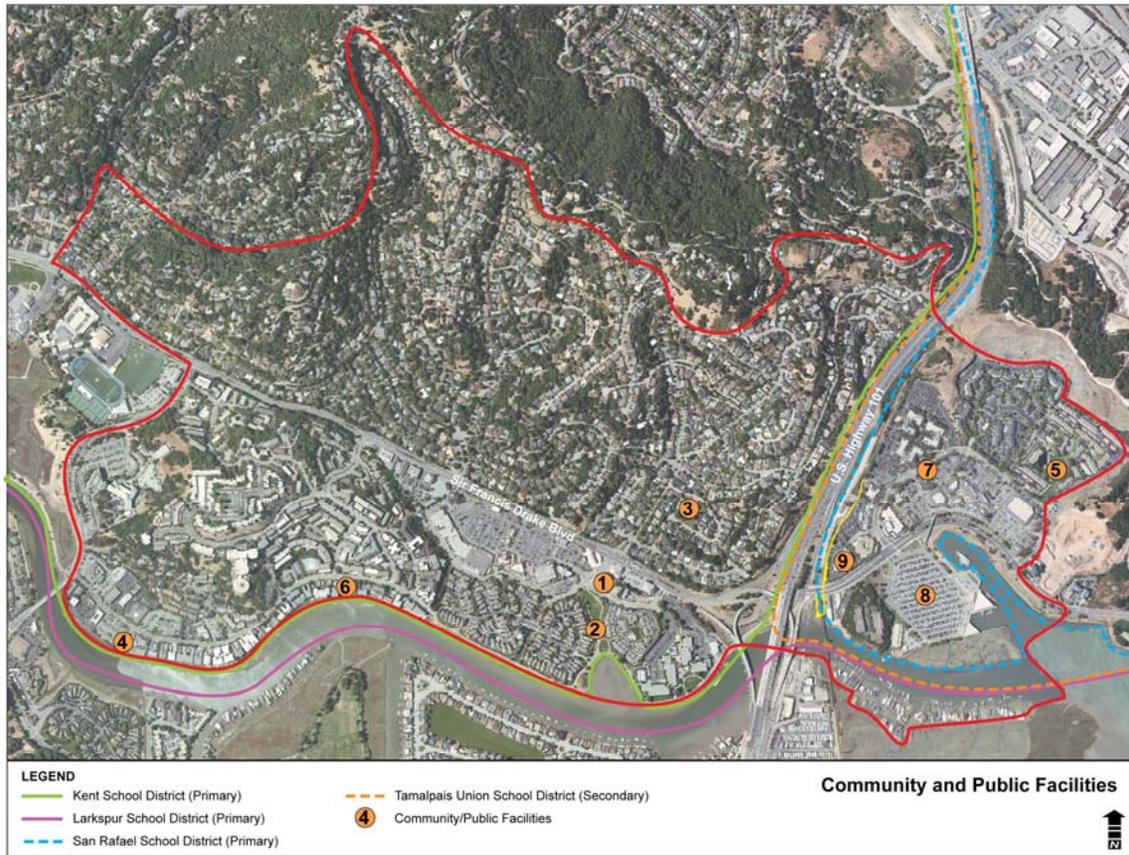
Geographic Area	Median Household Income	% Population Below Poverty Level
Marin County	\$71,306	6.60%
City of Larkspur	\$66,710	3.70%
Study Area	\$94,666	3.50%

Source: U.S. Census Bureau 2000

### 4.3 Community Facilities and Public Services

A variety of community facilities and public services are located within the study area. The locations of the facilities are provided in Figure 5 and listed in Table 5, after which a detailed description follows.

**Figure 5: Community Facilities and Public Services**



**Table 5: Public/Community Facilities**

No.	Name	Address
<b>Police and Fire Protection Services</b>		
1	Fire Station 16 (Greenbrae)	15 Barry Way, Greenbrae, CA
<b>Park and Recreational Facilities</b>		
2	Niven Park	13 Barry's Way, Larkspur CA 94924
3	Greenbrae School Park	South Eliseo and Parkside Way, Greenbrae, CA
4	Hamilton Park	1125 South Eliseo Drive, Larkspur, CA
5	Neighborhood Park	2998 Larkspur Landing Circle, Larkspur, CA
6	Bon Air Park	Adjacent to 557 South Eliseo Drive, Larkspur, CA
<b>Other Public Facilities</b>		
7	Marin Convention and Visitors Bureau	1013 Larkspur Landing Circle, Larkspur, CA
8	Larkspur Landing Ferry Terminal	101 East Sir Francis Drake Blvd, Larkspur CA 94939
9	Hospice by the Bay	17 East Sir Francis Drake Blvd, Larkspur, CA 94939

#### 4.3.1 Police and Fire Protection Services

Police protection and traffic enforcement services for the study area are provided by the Marin County Sheriff's Office, California Highway Patrol, and the Twin Cities Police Authority. The Twin Cities Police Authority was formed to serve both the City of Larkspur and the Town of Corte Madera; however, neither the Twin Cities Police Authority, nor the California Highway Patrol, has precinct stations, within the study area.

Fire protection services within the study area are provided by the Corte Madera and Larkspur Fire Departments. Station 16 (Greenbrae) is the only fire station located in the study area.

#### 4.3.2 Schools

The following four school districts provide educational services within the study area:

- Larkspur School District
- Kentfield School District
- Tamalpais Union School District
- San Rafael City School District

There are no schools located within the study area.

#### 4.3.3 Cultural Facilities

There are no cultural facilities located within the study area.

#### 4.3.4 Parks and Recreational Facilities

Table 6 lists the parks, and their associated, amenities, located within the study area. For park locations see Figure 5.

**Table 6: Park and Recreational Facilities**

<b>Park</b>	<b>Amenities</b>
Niven Park	Benches, picnic tables, playground equipment and greenbelt.
Greenbrae School Park	Tot lot, basketball court, and greenbelt.
Hamilton Park	Sitting and picnic area and greenbelt.
Neighborhood Park	Greenbelt, picnic area.
Bon Air	Fishing dock, sitting and picnic area and greenbelt.

#### 4.3.5 Bicycle and Pedestrian Trails

There are numerous bicycle and pedestrians trails within the study area. These are categorized by class distinctions, defined as the following in the *City of Larkspur Bicycle and Pedestrian Master Plan*<sup>6</sup>:

- **Class I Bikeway:** Typically called a bike path, this provides for bicycle and pedestrian travel on a paved right-of-way completely separated from any street or highway. These are particularly popular with novice cyclists and often avoided by experienced cyclists because they can become overly popular and crowded. The Caltrans design criteria require a minimum width of 2.4 meters (8 feet) for a two-way path.
- **Class II Bikeway:** These are often referred to as a bike lane. It provides a striped and stenciled lane for one-way travel on a street or highway. When properly designed, bike lanes help improve the motorists' awareness of bicyclists. The minimum width of a lane is 1.2 meters (4 feet), 1.5 meters (5 feet) if parking is permitted.
- **Class II Bikeway:** Generally referred to as a bike route, it provides for shared roadway use with motor vehicles and pedestrian traffic, and is identified only by signing. These are recommended to connect discontinuous segments of bikeway or when through routes are not served by Class I or Class II bikeways.

The existing bicycle and pedestrian facilities within the study area are listed in Table 7.

**Table 7: Existing Pedestrian and Bicycle Facilities in the Project Vicinity**

Segment	Type	From	To	Length (miles)
Corte Madera Creek Path East	Class I	South Eliseo Drive	Remillard Park	1.4
Corte Madera Creek Path West	Class I	Bon Air Road/ Creekside Park	Western City Limit	0.63
Greenbrae Interchange Under-Crossing	Class I	Corte Madera Creek Path	Redwood Hwy.	0.21
Bon Air Road/ Bridge Path	Class I	South West Side of Bon Air Bridge	Northerly City Limits	0.15
South Eliseo Drive	Class III	Bon Air Road	Corte Madera Creek Path	0.71
Bon Air Road	Class III	Bon Air Bridge	Northerly City Limits	0.15

## 5 Environmental Justice

Executive Order (EO) 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), dated February 11, 1994, calls on federal agencies to

<sup>6</sup> City of Larkspur Bicycle and Pedestrian Master Plan. August 2004

identify and address the disproportionately high and adverse human health or environmental effects of federal programs, policies, and activities on minority populations and low-income populations. The U.S. Department of Transportation (DOT) has published a Final DOT Order to establish procedures for use in complying with EO 12898 for its operating administrations, including FHWA. If disproportionately high and adverse impacts would result from the proposed action, mitigation measures or alternatives must be developed to avoid or reduce the impacts, unless the agency finds that such measures are not practicable.

### 5.1 Existing Conditions

The following analysis examines whether minority or low-income populations are located in the project area. Communities are generally considered to be predominantly minority or low income if they meet at least one of the following criteria:

- The low-income population is greater than 25 percent of the total population of the community, or minority population is greater than 50 percent of the total population of the community, or
- The low-income or minority population is more than 10 percentage points higher than the City or County average.

To ascertain the existing socioeconomic conditions in the project area, and to determine if Environmental Justice communities are present, an assessment of the existing demographics was undertaken. The best source for residential demographic data is the U.S. Census Bureau’s decennial census. To protect privacy, the Census Bureau does not publish house-by-house data, but instead compiles the information into larger geographic units. These units can include cities, places, zip codes and census tracts. For the purpose of the following analysis, year 2000 block group level data was examined for both ethnicity and income characteristics, the results are detailed in Table 8.

**Table 8: Minority and Low-Income Populations**

	Study Area	Marin County	City of Larkspur
% Minority Population	12%	21%	12%
% Low Income	4%	7%	4%
Source: U.S. Census Bureau 2000			

Neither the study area as a whole, nor the individual block groups within the study area, indicate the presence of Environmental Justice communities.

## 6 Potential Impacts

### 6.1 Plans and Policies

The CMFC project would neither conflict nor preclude any elements of the *Marin Countywide Plan*, the *City of Larkspur General Plan*, the *Marin County Unincorporated Area Bicycle and Pedestrian Master Plan* or the *City of Larkspur Bicycle Transportation Plan*. The project would provide a net benefit as it helps enhance and/or achieve the goals outlined in these plans.

In addition to the benefit provided to the aforementioned plans, the proposed project is in agreement with several private and public funding initiatives. The CMFC project either supports or provides a direct connection with the following projects:

- Redwood Highway: TAM received \$400,000 from the Department of Transportation (Caltrans) to enhance bicycle facilities located along Redwood Highway. These improvements will have a direct connection from the southern end of the future CMFC Phase II project, which will be the subject of a separate future environmental document following identification of funding.
- North-South Bicycle Freeway: The Marin County Bicycle Coalition (MCBC) received multiple grants from the Bikes Belong Coalition, to support the effort to upgrade the North-South Bicycle Freeway along the Northwestern Pacific Railroad.
- Cal Park Hill Tunnel: Marin County received a \$3,000,000 grant from the California Transportation Commission to reopen the Cal Park Hill Tunnel as well as numerous other grants. This tunnel provides a direct connection between the cities of San Rafael and Larkspur, cutting the travel time between the communities from 20 minutes to 5 minutes.<sup>7</sup>
- Region-wide transit and bicycle improvements: Measure Q, a ballot measure in Sonoma and Marin Counties, passed with 69.5 percent voting in favor. Funds raised from this ballot measure will be used for the construction of both a north-south commuter railway and bicycle improvements.

### 6.2 Community Character

Community cohesion is defined as the degree to which residents have senses of belonging to their neighborhood or experience attachment to community groups and institutions, as a result of continued association over time.

The CMFC project facilities would not constitute any new physical or psychological barriers that would divide, disrupt or isolate neighborhoods, individuals, or community focal points in the

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<sup>7</sup> National Trails Training Partnership. [www.americantrails.org/resources/railtrails.CA.html](http://www.americantrails.org/resources/railtrails.CA.html). Accessed January 2009.

corridor. The proposed project would increase the overall connectivity of communities, allowing citizens increased mobility and access via the use of alternative modes of travel.

### **6.3 Community Facilities and Public Services**

No public facilities or public services would be adversely affected or fully displaced by the proposed project. The long-term effect of the proposed project would be to promote alternative modes of travel, potentially reducing traffic congestion and increasing access to community facilities.

### **6.4 Relocations**

There would be no residential or business relocations as a result of the proposed project.

The proposed project will eliminate an estimated five parking spaces, approximately a 3.2% reduction in total parking volume, at the Marin County Airpotter, located at 300 Larkspur Landing Circle, Larkspur, CA, 94939.

Temporary impacts to parking include the following

- The overflow parking, used by riders on the Marin Airpotter and the Larkspur Ferry Caltrans, would be inaccessible during construction.
- Parking located adjacent to the proposed alignment will be temporarily inaccessible during construction, impacting parking availability at Hospice by the Bay and the Marin Air potter.

Coordination with the affected property owners will be ongoing to minimize the temporary parking impacts.

TAM

**Transportation Authority of Marin  
Central Marin Ferry Connection Multi-use Pathway  
Phase I Project  
Marin County, California  
IS/MND RESPONSES TO COMMENTS**

August 2010

TAM Project No.: C-FY05/06-007  
Jacobs Carter Burgess Project No: CB701729



<b>Commenter Name</b>	<b>Agency/Organzation</b>
Robert Atkinson	Sy West Development
Vince O'brien	Interested Citizen
Peter Hogg	Interested Citizen
John La Haye	Marin Municipal Water District
Ron Downing	Golden Gate Bridge Highway & Transportation District
Nona Dennis	Marin Conservation League
Sandra Guldman	Friends of Corte Madera Creek
Anthony Mekisich	Interested Citizen
Richard Attwood	Interested Citizen
Neal Toft	City of Larkspur
Karen Weiss	San Francisco Bay Conservation and Development Commission
Lisa Carboni	Caltrans
Barbara Salzman and Phil Peterson	Marin Audubon Society
Moses Stites	California Public Utilities Commission
David Schonbrunn	Transportation Solution Defense and Education Fund
Scott Stokes	Interested Citizen
David Hoffman	Marin County Bicycle Coalition



**From:** Robert\_Atkinson@sywest.com [mailto:Robert\_Atkinson@sywest.com]  
**Sent:** Monday, June 14, 2010 5:05 PM  
**To:** Bill Whitney  
**Cc:** Jessica Laughlin; m.daniels@circlepoint.com  
**Subject:** CMFC Multi-use Pathway environmental document - SyWest Development Comments

June 14, 2010

Attn: Bill Whitney  
TAM  
750 Lindero Street, Suite 200  
San Rafael, CA  
94901

Re: TAM Project # C-FY05/06-007 Central Marin Ferry Connection Multi-use Pathway

Dear Bill,

We are in receipt of Meghan's e-mail dated 6-1-2010 and have read the Initial Study/Mitigated Negative Declaration. We are in support of the proposed improvements, however we are very sensitive to any construction work that may have an impact on our Theatre property located at 500 Larkspur Landing Circle.

We are requesting that any pile operations (MM 28) or other work that might disrupt the existing Theatre, are restricted and scheduled such that they do not result in a negative impact on attendance or revenue. Our concerns are that allowing pile work, etc. work to continue adjacent to our property until 6 PM on Fridays will have a detrimental impact on our tenants business (movie start times on Fridays can occur by 5 PM).

Our request is that these potential concerns are noted in the Mitigated Negative Declaration, that the hours of operation (within one hundred yards of our property) are revised to reflect the cessation of pile or disruptive work by 4:30 PM on Fridays. If you have any questions, please do not hesitate to contact me at # 415-448-8397

Respectfully,

Robert Atkinson.

---

**Robert Atkinson - SVP**  
**SyWest Development**  
**150 Pelican Way**  
**San Rafael, CA**  
**94901**

**Office # 415-448-8397**

**<http://www.sywest.com/2008/>**

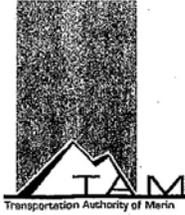
### **Response to Comment 1**

The Transportation Authority of Marin (TAM) recognizes your concerns regarding the hours of construction and proximity to the theatre property. For pile work on Friday, we will include in the construction specification that all pile work shall be stopped prior to 4:30 pm, each week. Additionally, all efforts will be made to minimize or avoid construction impacts to you and your tenants.



**Response to Comment 2**

Comment noted.



COMMENT CARD

Central Marin Ferry Connection Multi-use Pathway Phase I Project

Please submit written comments today or mail by July 2, 2010 to:

Transportation Authority of Marin
CMFC Multi-use Pathway Phase I Project
Attn: Bill Whitney, TAM Project Manager
750 Lindero Street, Suite 200
San Rafael, California 94901

Name: Peter Hoop
Address: P.O. Box 1255
Mill Valley, CA 94942

Phone: 415-735-7926
E-mail: system2020@msn.com

Please provide comments on the adequacy of the Draft Initial Study/Mitigated Negative Declaration (IS/MND):

3

Please delete the sentence in the first few pages that describes phase 2 as providing access to Greenbrae boardwalk.

Please use the reverse side or attach any additional pages

### **Response to Comment 3**

Although Phase II is not part of this project, a brief description of it and how it would relate to Phase I was included for information only so that the Public is aware of the concepts for Phase II. A separate environmental document will be required for Phase II should funds become available for the improvements. At this time Phase II is conceptual and is not funded. The issue of access to the Greenbrae Boardwalk is not a consideration in the current project and could be addressed in the environmental studies for Phase II. The Initial Study/Mitigated Negative Declaration (IS/MND) will not be amended to remove the suggested sentence.

-----Original Message-----

From: Jon LaHaye [<mailto:jlahaye@marinwater.org>]

Sent: Monday, June 28, 2010 2:18 PM

To: Bill Whitney

Subject: Central Marin Ferry Connection Multi-Use Pathway

Hello Bill,

As we discussed, MMWD Desal Project EIR included a pipeline alignment in the immediate vicinity of the proposed Multi-Use Pathway. The District's EIR also includes a pipeline undercrossing of Corte Madera Creek to connect to Redwood Hwy. Even though MMWD is not currently pursuing the Desal Project, it is prudent to discuss the potential for including a future water transmission pipeline along the pathway and as part of any new bridges across Corte Madera Creek.

Do you have any preliminary design drawings of the Phase I pathway or Phase II creek crossing that you can share with MMWD? Thanks for your assistance.

Jon M. LaHaye, P.E.  
Principal Engineer

(415) 945-1589  
[jlahaye@marinwater.org](mailto:jlahaye@marinwater.org)

4

#### **Response to Comment 4**

Thank you for the information on the Marin Municipal Water District (MMWD) Desal Project Environmental Impact Report (EIR). This information will be considered in the conceptual studies for Phase II should funding become available to further study a multi-use path (bridge) crossing over Corte Madera Creek. TAM looks forward to future discussions with the MMWD regarding the bridge structure and its relationship with the MMWD Desal Project. TAM will provide you with a hard copy of preliminary engineering drawings for Phase I.

June 29, 2010



Mr. Bill Whitney, Project Manager  
Transportation Authority of Marin  
750 Lindero Street, Suite 200  
San Rafael, CA 94901

**Re: Central Marin Ferry Connection Project IS/MND**

Dear Mr. Whitney:

Golden Gate Bridge, Highway and Transportation District (District) staff has reviewed the Initial Study and Mitigated Negative Declaration (IS/MND) for the Central Marin Ferry Connection Project. The first project phase includes construction of a bicycle and pedestrian pathway and bridge connecting the Cal Park Tunnel pathway to both sides of Sir Francis Drake Boulevard. An unfunded second phase would extend the pathway further south into Corte Madera and Larkspur.

District staff anticipates improved multimodal access to the Larkspur Ferry Terminal as a result of both phases of the project. Further, because the first phase may reduce pedestrian activity at the intersection of Sir Francis Drake Boulevard and Larkspur Landing Circle, the District expects improved access to the ferry terminal for all travel modes, including transit and vehicles.

5

The District appreciates that the first phase of the project is designed to accommodate direct access to a proposed bus stop at the Highway 101 interchange. The bus stop, which would be located on the northbound Highway 101 on-ramp from Sir Francis Drake Boulevard, may be constructed as part of planned highway improvements. The accommodation may make it easier to fund and build the pedestrian connection should the proposed bus stop be implemented.

Thank you for providing the District with the opportunity to submit comments on the Central Marin Ferry Connection Project IS/MND. You may contact David Davenport, Associate Planner, at (415) 257-4546 if you have any questions regarding these comments.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ron Downing".

Ron Downing  
Director of Planning

c: David Davenport  
Norma Jellison  
Maurice Palumbo

### **Response to Comment 5**

Thank you for your observation on the proposed improvements. Phase I (and Phase II if funded and approved) would provide improved multimodal access to the Larkspur Ferry Terminal and the surrounding area. TAM has studied the potential for new bus stops on Sir Francis Drake Blvd. and will continue to work with the Golden Gate Bridge Highway & Transportation District to implement the proposed bus stops.

June 30, 2010

Bill Whitney, P.E.  
Transportation Authority of Marin  
750 Lindero Street, Suite 200  
San Rafael, CA 94901

RECEIVED

JUL 1 2010

Transportation Authority of Marin



Re: Central Marin Ferry Connector Multi-Use Pathway Phase 1 Initial Study/Mitigated Negative Declaration

Dear Mr. Whitney:

Marin Conservation League wishes to submit the following comments on the Initial Study/Mitigated Negative Declaration (IS/MND) for the subject project. We have tracked the development of the project for several years and acknowledge that considerable study and preliminary engineering design have gone into it. We also acknowledge that the project (subject to definition of "the project" discussed below) will address a need and serve a beneficial purpose.

We have three concerns, however, with the limitations inherent in an Initial Study/Mitigated Negative Declaration as the appropriate documentation for CEQA analysis of the project: (1) the absence of cumulative impact analysis; (2) the lack of an alternatives analysis, or even the suggestion that there might be an alternative design or alignment for Phase I; and (3) lack of specificity of mitigation measures and failure to mitigate potentially significant impacts to a level of insignificance. For the reasons discussed below, we believe that a Focused Environmental Impact Report should be prepared to enable an informed decision.

1. Cumulative Impacts Are Not Analyzed.

The basic "Description of Project" in Section F (Page 1) of the IS/MND is evident in the project's title: Central Marin Ferry Connector Multi-Use Pathway. This "project" embraces an objective that has been under study by TAM for several years, namely, to promote non-motorized commute alternatives through the Greenbrae Corridor. The general configuration of the project involves connection of the Cal Park Tunnel multi-use pathway (under construction) with the Ferry Terminal and planned SMART station and with Wornum Drive/Sandra Marker pathway (existing) in Corte Madera.

As further described, the proposed project is broken into two phases (Phase I and II). Phase I includes the future Cal Park Hill Tunnel pathway to the existing multi-use pathway located south of East Sir Francis Drake Boulevard along the north bank of the Corte Madera Creek. . . Phase II would include *an extension of the Phase I multi-use pathway* south over Corte Madera Creek to Wornum Drive (emphasis added).

The next paragraph in Section F asserts: "Phases I and II of the proposed project have independent utility with respect to each other, because each would serve their (*sic*) own purpose of providing non-motorized travel in the area and would occur regardless of whether the other phase was to occur."

PHONE: 415.485.6257  
FAX: 415.485.6259

EMAIL: mcl@marinconservationleague.org  
URL: www.marinconservationleague.org

ADDRESS: 1623-A Fifth Avenue  
San Rafael, CA 94901

Why, if the two phases are truly independent, is Phase II characterized as “*an extension*” of the Phase I pathway? Why is the only alternative presented for Phase I aligned so obviously with pathway options on the south side of the Creek? Why are the two phases illustrated together and titled “The Project” in graphic displays at Open Houses concerning the project, but not shown as such in this IS/MND? We can only assume that TAM has been advised that they can avoid preparing an EIR by claiming “independent utility” of the two phases.

Legal arguments can be made on both sides of the claim that a Negative Declaration can focus on one project that is arguably part of a larger scheme if the project has “independent utility” that justifies its separate processing and approval. We would argue that because the basic elements of the “larger scheme” (Phase I and Phase II) have been defined by TAM – even to the level of identifying alternative alignments for Phase II – that Phase II is indeed *reasonably foreseeable* for purposes of assessing cumulative impacts. Therefore, this environmental document should address the larger scheme, at least in a broad-brushed fashion, in an analysis of cumulative impacts.

8 One requirement of a Negative Declaration (Section VI) is that the lead agency must find that the project will not have any impacts “that may be individually limited but cumulatively considerable.” This MND states: “As described in Section V of this Initial Study, any potential environmental impacts from the proposed project, including the project’s potential contribution to cumulative impacts, would be mitigated to a less than significant level. *Therefore, the proposed project does not have impacts that are individually limited but cumulatively considerable*” (emphasis added). Since the term “cumulative impact” never appears under any topic in Section V, nor is a cumulative context ever suggested, this finding has no analytical basis.

We request that TAM, at a minimum, describe the general parameters of the “reasonably foreseeable” Phase II, including bridging Corte Madera Creek and alternative pathway alignments under consideration, and address the potentially significant cumulative impacts of implementing the second phase when funding does become available. These cumulative impacts could include, but not be limited to: direct cumulative impacts of construction in tidal marsh, cumulative impacts of increased human activity on identified endangered and other special status species habitats; and cumulative impacts of increased bicycle and pedestrian traffic when the two phases are eventually connected, as they concern safety and potential user conflicts and indirect degradation of the tidal marsh. A Focused EIR would facilitate this discussion.

## 2. Alternatives Analysis is Lacking

9 Alternatives are typically defined in relation to the objectives that the project is designed to accomplish. In this MND, objectives are presented as Need and Purpose. As the Cal Park Tunnel renovation nears completion, non-motorized East Sir Francis Drake Boulevard will serve as a physical barrier to non-motorized travel between the Tunnel pathway and the existing multi-use pathway located south of the roadway (hence the *need* for the project). The *purpose* of the Phase I project is to overcome that barrier and improve public access and connectivity for non-motorized traffic between transit facilities. That the proposed project also would “improve public access to viewpoints for the public to view the Corte Madera Creek salt marsh area and San Francisco Bay by constructing an elevated path along the north bank of Corte Madera Creek” is completely irrelevant to meeting the objectives, even if an appealing afterthought! (A number of other raised viewpoints already exist in the area: the pedestrian overpass from Larkspur Landing to the Ferry Terminal, the pedestrian-bicycle paths along the exit and entrance ramps between Hwy. 101 and Sir Francis Drake Boulevard; the pathway along the shore opposite the Ferry Terminal; etc.)

10 The purpose of alternatives is to examine less damaging means of accomplishing the objectives of the project. The IS/MND does not offer any alternatives. Since the first choice to mitigate impacts on wetlands is avoidance, no alternative is offered that does this. Construction of an elevated pathway for purposes of viewing the Bay does not justify any impacts on tidal wetlands. Other alternatives that could be considered include: a more compact structure to reach grade at the south end of the overpass; direct access from Cal Park Tunnel to Larkspur Landing and use of the existing Sir Francis Drake overcrossing to the ferry terminal; and a redesigned at-grade crossing at Larkspur Landing Circle to the ferry terminal. These alternatives may already have been considered. If so, the reasons for their rejection should be documented. This would be facilitated by preparation of a Focused EIR.

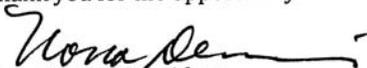
### 3. Mitigation Measures are Incomplete

11 A total of 28 mitigation measures are proposed, 27 of them concerning impacts on biological resources. Without exception the measures deal entirely with construction-related impacts and consist largely of generic "best management practices." Long-term and indirect impacts of the project are not mitigated. The IS/MND identifies indirect effects of the project: e.g., ". . . increase in pedestrian and bicycle traffic in the salt marsh area, which would also likely result in an increase in the amount of trash and debris that may further degrade the quality of the habitat. Also direct shading from construction of the multi-use pathway would inhibit pickleweed growth, which would reduce salt marsh habitat." These are potentially significant impacts, but no measures are offered to mitigate the impacts to less than significant.

12 The Natural Resources Study for the IS/MND identifies that 47 trees, including 17 coast live oaks, would be removed by the project. The only mitigation provided is obtaining permits for heritage trees from the City of Larkspur and replacement of "heritage" tree (where??) at approved ratios. The document should provide a more detailed assessment of the location of these trees and their importance as habitat for a variety of birds and other wildlife. The discussion should examine the possibility of alternative alignments that would avoid or reduce the number of trees removed.

13 In conclusion, the decision by TAM to prepare an IS/MND on this project has resulted in an environmental analysis that is incomplete and denies the public an opportunity for full disclosure of the project and its impacts. One can make a fair argument that one or more significant impacts may potentially result from the project (e.g., indirect impacts of shading and increased trash on the quality of the tidal marsh habitat [see above]), an argument that is supported by substantial evidence in the Natural Resources Study, and that these impacts have not been mitigated in the IS/MND to less than significant. For these reasons, a Focused EIR should be prepared.

Thank you for the opportunity to comment.

  
Nona Dennis, President

cc. Friends of Corte Madera Creek  
Marin Audubon society

### **Response to Comment 6**

Although the IS/MND includes a brief description of the Phase II concepts, it is not funded or included as part of the scope in the IS/MND for the Phase I project. Phase I is a stand alone project that could be fully operational without the addition of any future phases. Phase II was not included in the evaluation of impacts because it is currently considered to be speculative and unfunded project. Additionally, the impacts are not certain to occur and can not be anticipated. As a result, the IS/MND only evaluated the environmental impacts of the Phase I project. If Phase II were to be included in this analysis it would over estimate potential environmental impacts that may never be realized.

### **Response to Comment 7**

Phase II is characterized as an “extension” because it would extend the pathway in the same way that any future multi-use path project adjacent to the Central Marin Ferry Connection Project would. However, characterizing Phase II as an extension of Phase I does not, by itself, make it part of Phase I. Likewise, Phase I is an extension of the Cal Park Hill Tunnel Rehabilitation Project, but is not considered part of that project.

The design of Phase I include considerations for a Phase II project in the event that it were to be funded and approved. As a result, the Phase I was designed so as not to preclude a connection with future concepts for Phase II. In the event that Phase II was to become funded, a separate environmental document will be required to assess the impacts associated with that project.

Inclusion of proposed alignments for Phase II at the June 17, 2010 open house was intended to provide the public with an opportunity to view the Phase II concepts. Two concepts were shown, including a crossing that extends parallel to the existing railroad bridge as well as a crossing that uses the existing East Sir Francis Drake Blvd., northbound US Highway 101 off-ramp.

During early public outreach efforts for the Greenbrae Corridor Improvement Project, the public expressed an interest in TAM improving the crossing over the Corte Madera Creek. In response to the public input, TAM studied various alignment concepts for Phase II to demonstrate TAM’s commitment to explore improved multi-modal access south of Corte Madera Creek, should funding becomes available. In the event that Phase II was to become funded, a separate environmental document would be prepared to assess the impacts associated with that project.

### **Response to Comment 8**

As described above, the design of Phase I include considerations for a Phase II project in the event that it was to be funded and approved. As a result, the Phase I was designed so as not to preclude a connection with future concepts for Phase II. However, the consideration of a potentially future project does not mean that the future project is “reasonably foreseeable.” As described in *Sierra Club v. Marsh* (1985) 769 F.2<sup>nd</sup> 868, the “reasonably foreseeable” test includes the following:

- 1) Can one be confident that the impacts are likely to occur?
- 2) Can impacts be sufficiently described and specified now to allow for useful evaluation? and
- 3) If impacts are not evaluated now, will future evaluation of impacts be irrelevant.

First, TAM contends that because it is unknown as to whether the Phase II project would occur, TAM is not confident that the impacts are likely to occur. Second, Phase II has not been designed such that useful evaluation of impacts is possible. Currently two concepts for Phase II were identified and each would have significantly different impact. As stated above, the inclusion of preliminary alternative alignments during the June 17 open house does not constitute a commitment to build the project but rather to provide the public with an opportunity to view some future concepts. Third, future evaluation of impacts would not be irrelevant if Phase II were to occur, because the baseline environmental conditions in the area are unlikely to change and a meaningful evaluation of impacts would be possible at that time.

The request to include a cumulative impact assessment as part of this environmental document is predicated on the need to include Phase II. However, for the reasons described above, Phase II is a speculative and conceptual project at this time, is not funded, and may not be constructed. As a result, only an assessment of the impacts associated with Phase I is required in the IS/MND.

### **Response to Comment 9**

The extension of the pathway into the marsh area is not intended to solely provide additional viewing opportunities of the creek, but to accommodate important user requirements, such as safety and compliance with the Americans with Disabilities Act (ADA) standards. The area where the pathway goes through the old railroad trestle (portions of the railroad trestle will be removed at this location) was widened to improve safety by separating the bicyclists from pedestrians at that location. The secondary benefit of having a larger area contributes to creating additional viewing areas of the creek. Additionally, the proposed project is located within the San Francisco Bay Conservation and Development Commission’s (BCDC) jurisdiction and one of the requirements of the BCDC is to “provide maximum feasible public access.” Evaluation of public access includes considerations for viewing opportunities (i.e., “overlook decks”).

## **Response to Comment 10**

An IS/MND only requires the evaluation of environmental impacts associated with the preferred alternative (i.e., it is not necessary to evaluate other alternatives). Although only the preferred alternative is described in the IS/MND, numerous alternative alignments were evaluated during the initial concept development phase and presented at public meetings. Public input was factored into the selection of the preferred alternative. Other alternatives that were considered included the following (reasons for their exclusion are shown in italics):

- A multi-level structure consisting of a series of stacked ADA ramps (as suggested in your letter).

*A multi-level, stacked structure would have more than double the footprint in size as compared to the spiral structure at Fifer Ave to meet current ADA standards. The current spiral structure at Fifer Avenue, crossing over US 101, does not meet current ADA standards and has issues relating to public safety, such as lurking. If a similar multi-level, stacked structure were to be placed south of Sir Francis Drake; it would block the view of the creek; encroach into Caltrans right of way; impact the existing multi-use path (bike boardwalk); and encroach into the marsh area and the creek, as well as impact major sewer lines and underground utilities in that area. Caltrans approval would be required and based on the impacts, this proposal would not be supported by Caltrans.*

- An alignment that crosses East Sir Francis Drake Blvd. west of the railroad trestle

*Several variations of this alignment were studied and were found to impact the marsh and major sewer lines and underground utilities in the area. It would also require that the multi-use path cross over the Sonoma Marin Area Rail Transit (SMART) tracks or go under the tracks via a tunnel. These options had more costly impacts, as well as complicate the connection to the existing multi-use pathway. The alignment would also encroach into the marsh area, impact the existing multi-use path (bike boardwalk), and Caltrans right of way. Caltrans approval would be required and based on the impacts; it would not be supported by Caltrans.*

- A direct alignment from Cal Park Hill Tunnel Rehabilitation Project to the Larkspur Ferry Terminal

*Would require a substantial flyover structure that is longer and have more of a visual impact. Acquisition of additional right-of-way from private properties would be required for columns as well as the ramp approach leading to the flyover structure. There would be impacts on parking on private property and impact on the Ferry Terminal parking areas. More importantly, it would not meet one of the key objectives of the project, which is to provide direct access to existing multi-use pathway or utilize the already designated transportation corridor.*

- A structure similar to the preferred alternative with longer, more gradual ramp inclines that extend farther into Corte Madera Creek.

*Reducing or flattening the ramp grades would result in a longer bridge that encroaches into the open waters of Corte Madera Creek. This alternative would increase the environmental impacts due to the project, add significant project cost, as well as complicate the construction of the project.*

The current design reflects the consideration of many factors, which includes, but is not limited to, the safety of all users, adherence to ADA standards, and minimizing impacts to the marsh area south of East Sir Francis Drake Blvd. The current design as proposed in the IS/MND considers design factors such as width, clearance to obstructions, signing and delineation, design speed of bicyclists, horizontal alignment and superelevation, stopping sight distance, vertical curve requirements, drainage, lighting, and line of sight around curves, as well as minimizing impacts on the marsh area. For these reasons, a longer ADA compliant ramp was chosen to bring users from the East Sir Francis Drake overcrossing down to the sidewalk level. As a compromise, a maximum ADA compliant slope of 4.9% on ramps and maximum slope of 8.33% on ramps with landings were used to minimize the current ramp lengths and potential impacts to Corte Madera Creek.

### **Response to Comment 11**

#### *Indirect Impacts Related to an Increase in Human Generated Trash*

An increase in the amount of human-generated trash is anticipated; however, the effects on the salt marsh would not be considered significant. The proposed project is located in a highly urbanized area adjacent to US Highway 101 and East Sir Francis Drake Blvd is surrounded by residential and commercial development. Additionally, there are two existing multi-use pathways within the project area. The proposed project area is already impacted by human-generated trash and is considered to be part of the environmental baseline condition. Any increase in the amount of trash resulting from the operation of the pathway is not anticipated to result in a significant impact above the baseline condition. Additionally, maintenance of the pathway by the owner/operator of the pathway would be required, which would include the removal of trash on the pathway on a long-term basis. TAM is currently coordinating with various local and regional agencies regarding maintenance and long-term ownership of the improvements.

#### *Indirect Impacts Related to Shading from the Multi-use Pathway*

There are two mitigation measures that address impacts to the wetland habitat; Mitigation Measure 2 (Wetland Habitat Restoration), and Mitigation Measure 6 (Replant/Re-seed Salt Marsh Habitat). Mitigation Measure 6 is intended to offset the impacts associated with the temporary construction access and construction of the multi-use pathway. Mitigation Measure 2 is intended to offset the impacts associated with the permanent structures placed within the tidal salt marsh. It states that “the portion of tidal salt marsh subject to mitigation through the creation or restoration of wetland habitat would include only the area of permanent impact associated with the multi-use pathway (i.e., columns, footings, and piers placed within the tidal salt marsh) (0.03 acre [0.01 hectare]).” It is important to note that the proposed wetland mitigation of 0.03 acre is for US Army Corps of Engineers (USACOE) permitting, which only includes the area associated with permanently placed fill within waters of the US (i.e., wetlands). This portion of

the proposed mitigation would not include the impacts associated with temporary impacts (0.038 acre) because the USACOE only requires mitigation for permanent loss to waters of the U.S. However, Mitigation Measure 6 would offset the impacts to the salt marsh associated with the temporary impacts through revegetation. Additionally, mitigation for sensitive species habitat (i.e., California clapper rail, California black rail, and salt marsh harvest mouse), would be done separately and through consultation with US Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) and would consider both direct and indirect impacts, which includes shading. Thus, “coordination with USACOE, USFWS, and CDFG to establish mitigation measures to offset impacts to the tidal salt marsh in accordance with Section 404 of the Clean Water Act, Federal Endangered Species Act, and California Endangered Species Act” would ensure that the restoration/creation of wetlands at an appropriate level to offset all impacts to the wetland area, including. Furthermore, TAM will work with the federal and state regulatory agencies to implement the required mitigation measures that could focus on further reducing indirect impacts.

Coordination with federal and state regulatory agencies is required and will ensure that the project is in compliance with federal and state laws related to protection of sensitive resources. Specifically, the USACOE, USFWS, and CDFG are all discretionary permitting agencies that will require sufficient mitigation to offset the impacts to sensitive resources prior to the issuance of any permits to perform the work. Therefore, the project includes measures to mitigate the impacts associated with the project.

Furthermore, a NEPA document will be prepared due to federal funding, which will require obtaining a biological opinion through consultation with USFWS prior to certification of the document.

### **Response to Comment 12**

It is anticipated that approximately 47 trees could be removed as part of the project due to unavoidable project constraints. The pathway alignment constraints include matching the alignment of the Cal Park Hill Tunnel Rehabilitation Project, staying within the existing SMART right-of-way, avoiding the existing railroad trestle, accommodating for potential extension of the SMART facility to the south; and avoiding the location of the future SMART Station. A description of trees that will be impacted and their locations are shown in the Visual Impact Assessment (refer to Appendix D, pages D-1, 2). The Natural Resource Study has examined the impact and specifically, the impacts are related to loss of potential nesting habitat for birds protected under the migratory bird treaty act. As a result, the project committed to replacement of removed trees at a 2:1 ratio for heritage trees 15–24 inches in diameter and at a 4:1 ratio for trees greater than 24 inches in diameter” per the City's requirement. Tree replacement will consider on-site replanting first, and then off-site, if on-site isn't feasible. This is acceptable mitigation when avoidance of tree removal isn't feasible.

### **Response to Comment 13**

The claim that the environmental document is incomplete and does not provide full disclosure is based on the assertions that an alternatives analysis and a cumulative impact assessment should

be included in the document, and that the mitigation measures do not reduce the impacts to below a significant level. Responses regarding these issues are summarized below.

- *Alternatives Analysis is required*

An alternatives analysis is not required for an IS/MND; however, the early design process involved the evaluation of numerous alternatives that were not carried forward for a variety of reasons related to constructability, environmental impacts, and cost. Thus, alternatives were evaluated as part of this project.

- *Cumulative Impact Assessment is Required*

A cumulative impact assessment is also not required for an IS/MND. The argument for including a cumulative impact analysis is based on the supposition that Phase II is part of the proposed project and that the impacts associated with it should be included as part of the Phase I project. As stated above, Phase II is a speculative and conceptual project at this time and may not be constructed. Phase I is a stand alone project that would be constructed regardless of whether Phase II were to occur. Also, construction of Phase II is not “reasonably foreseeable” at this time for the reasons described above. The design of Phase I considered many factors, which included a possible future Phase II project connection. As a result, the design of Phase I does not preclude Phase II should funding become available. Thus, a cumulative impact assessment is not required and Phase II should not be considered in the evaluation of environmental impacts.

- *Mitigation Measures Do Not Reduce Impacts Below a Significant Level*

The claim that the proposed mitigation measures would not reduce the impacts to biological resources is based on the assertion that the impacts to trees and potential indirect effects from the multi-use pathway (i.e., increase in human-generated trash and shading from the pathway) would be significant.

- Impacts to trees (i.e., trimming and removal) are unavoidable, but implementation of Mitigation Measure 21 provides specific information regarding sizes and ratios for replacement. The replanting of trees would offset the impacts and result in a net gain of trees.
- An increase in the amount of human-generated trash may be an impact; however, the effects on the salt marsh would not be considered significant. The proposed project is located in an urbanized area that contains two existing multi-use pathways. Any increase in trash is not anticipated to result in a significant impact above the existing baseline condition. Additionally, maintenance of the pathway by the owner/operator of the pathway would be required, which would include the removal of trash on the pathway.
- The impacts from shading would be offset through the implementation of Mitigation Measure 2, which requires the restoration or creation of wetlands through consultation with the USFWS. Both direct and indirect impacts to the

tidal salt marsh will be considered as part of that consultation. Thus, the proposed mitigation measures would reduce impacts on the tidal salt marsh from shading to below a significant level.

Coordination with federal and state regulatory agencies is a requirement and will ensure that the project is in compliance with federal and state laws related to protection of sensitive resources. Specifically, the USACOE, USFWS, and CDFG are all discretionary permitting agencies that will require sufficient mitigation to offset the impacts to sensitive resources prior to the issuance of any permits to perform the work. TAM recognizes the importance of such sensitive habitats and is committed to minimizing impacts from the proposed project. To this end, TAM has endeavored to avoid, minimize, and mitigate for impacts to sensitive habitats and species, which has been reflected in the design process. Thus, TAM contends, for the reasons previously stated, that the environmental document is complete, there has been sufficient analysis has been performed, and that full disclosure of the potential impacts associated with the proposed project have been achieved in the IS/MND and that a focused EIR is not required.



# Friends of Corte Madera Creek Watershed

P.O. Box 415 • Larkspur • California 94977

info@friendsofcortemaderacreek.org (415)456-5052 www.friendsofcortemaderacreek.org

June 30, 2010

Bill Whitney  
Transportation Authority of Marin  
750 Lindero Street, Suite 200  
San Rafael CA 94901

RE: Comments on **Central Marin Ferry  
Connection Multi-use Pathway Phase I**

Dear Mr. Whitney,

Friends of Corte Madera Creek Watershed appreciates your consideration of our comments on the Initial Study/Negative Declaration on Phase I of the Ferry Connection Multi-use Pathway. The Initial Study states:

Phase I would include a multi-use pathway from the future Cal Park Hill Tunnel Pathway and Sonoma Marin Area Rail Transit (SMART) Larkspur Station located east of U.S. Highway 101 and north of East Sir Francis Drake Boulevard to the existing multi-use pathway located south of East Sir Francis Drake Boulevard along the north bank of the Corte Madera ...

14

No mention is made of connecting to a bridge across Corte Madera Creek or providing a viewing platform at the edge of the creek.

We recommend that a Focused EIR be prepared to adequately review the project, its potential adverse impacts, and to provide an alternatives analysis and analysis of cumulative impacts. Our specific concerns and questions are discussed below.

**1. A focused EIR is needed to provide an alternatives analysis, which is not required for a Negative Declaration.** Two elements of the project design need further analysis:

15

**a. The long ramp with the U-turn:** The long ramp that leads south to the edge of Corte Madera Creek and then makes a U-turn to return to the existing path appears to be part of a larger project that would include a bridge over Corte Madera Creek; if so, it belongs in Phase II, not Phase I. If it is intended to provide a viewing platform, it is entirely unnecessary. A viewing platform is not listed as a component of Phase I and there are numerous locations in the project vicinity that provide views of the creek: the existing path over the creek, the ferry terminal area, Greenbrae Boardwalk and the path system along the north side of the creek. The Initial Study does not contain sufficient information about the purpose of this structure and why it extends over the marsh, rather than ending near the existing multi-use pathway on the south side of East Sir Francis Drake Boulevard. There are alternatives that would not require paths over the marsh, but they are not discussed in the Negative Declaration.

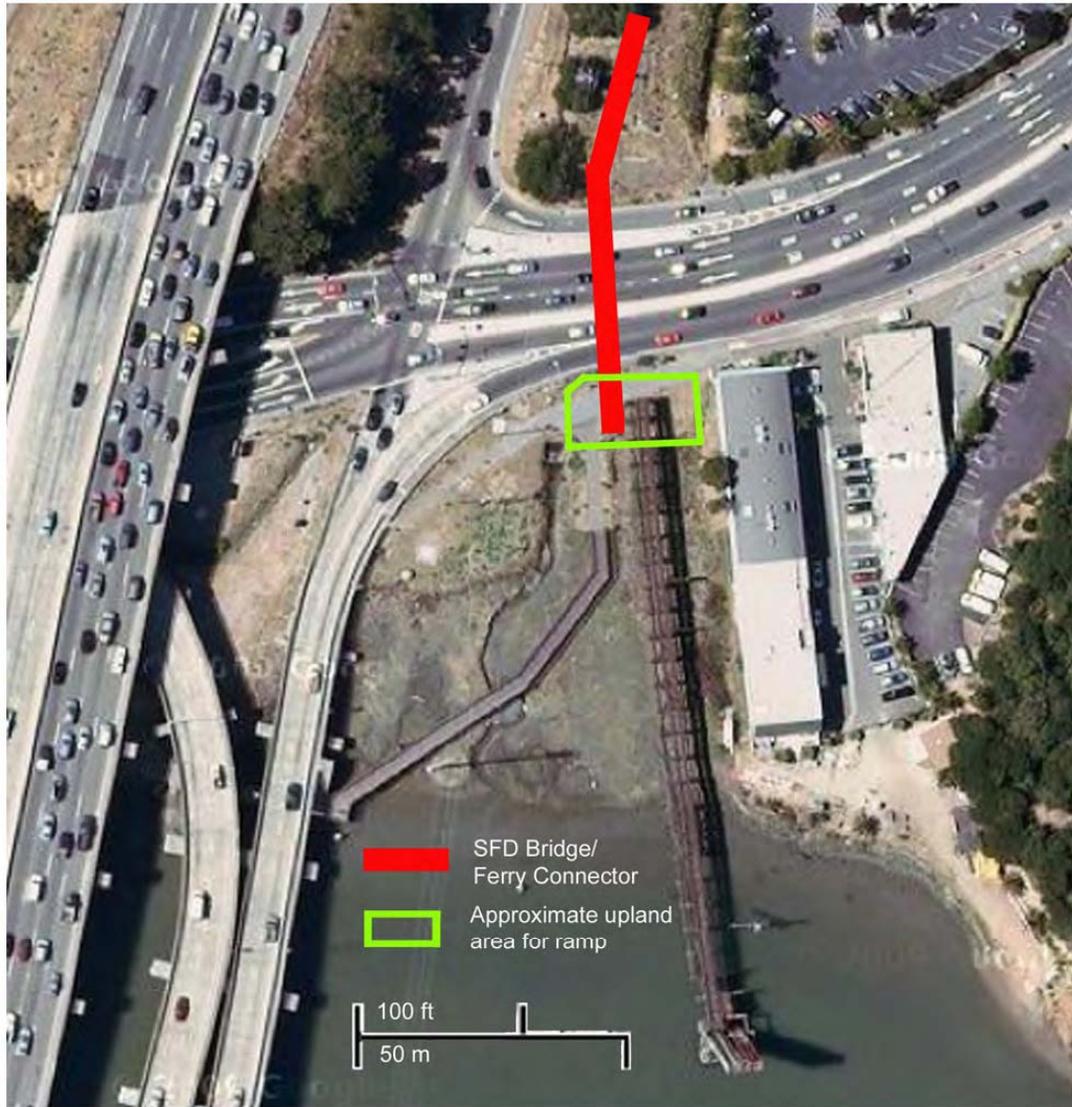
16

The impact discussion is vague and does not address all of the potential impacts. The proposed mitigation is also vague and does not provide any certainty that marsh impacts would be adequately mitigated. Every effort should be made to first avoid and then minimize impacts. Any mitigation for unavoidable impacts to a marsh in Corte Madera Creek should be mitigated nearby in Corte Madera Creek

17

A Focused EIR should be prepared to address less environmentally damaging alternatives that would not require two long structures over the tidal marsh, causing extensive damage during construction and permanently shading a significant portion of the remnant marsh. We are submitting the enclosed alternative (Figure 1) for consideration in this analysis. This alternative includes a spiral ramp, such as exists at the Lucky Drive interchange, or stacked straight ramps, both located near Sir Francis Drake. Either of these structures could be located on upland areas, thus avoiding any impact to the marsh. They would also meet the stated purpose of crossing Sir Francis Drake and connecting to the existing trail network that leads to the Ferry Terminal.

**Figure 1:** Alternative Plan



Source of Basemap: Google Maps 2010

18

**b. Tree Removal** - The Natural Resource Study states that 47 trees would be removed, and that 16 would be native oak trees. There is no consideration of the habitat importance of native oaks or of the importance of native oaks in view of the significant county-wide loss of oaks from Phytophthora. A Focused EIR is needed to provide a more thorough impact analysis and to address alternatives for a path alignment that would not destroy native trees. As shown in the drawing above, we suggest that the bridge across Sir Francis Drake should be west of the railroad bridge. The path could cross under the tracks, if they are constructed, somewhere between the train station and East Sir Francis Drake Boulevard. This would avoid the loss of some native trees.

19 | **2. A Focused EIR is needed to provide a cumulative impact analysis as Negative Declarations are not required to provide this analysis.** The Initial Study is clear that the intent is to plan and implement Phase II to extend south to the Village Shopping Center. Historically, there has been extensive loss of tidal marsh along Corte Madera Creek resulting in a substantial reduction of the once-wide marshes that lined Corte Madera Creek to a narrow fringe. In the light of these extensive losses and the potential future impacts connected to the planned Phase II of the project, a cumulative impact analysis must be performed.

20 | Finally, we are concerned that oversight of the project mitigations, as pointed out for many mitigation measures in the Initial Study, would be performed by the "lead agency." This is a clear conflict of interest because the lead agency is the Transportation Authority of Marin, the project proponent. An independent entity should be responsible for verifying the completion of all mitigation measures.

21 | In conclusion, we disagree with the conclusions in the Initial Study in Section VI. Mandatory Findings of Significance. The Initial Study appears to demonstrate that the project has the potential to have a significant effect on the environment. Specifically, the project may have the potential to degrade the environment; to achieve short-term goals to the disadvantage of long-term environmental goals; and to cause impacts that may or may not be individually limited (due to lack of information) but have significant incremental effects. At a minimum, a Focused EIR should be required to provide further analysis so that these issues can be adequately addressed.

Sincerely,



Sandra Goldman  
President

C (via email): Nona Dennis, MCL  
Barbara Salzman, Marin Audubon  
Richard Atwood, 13 East Dir Francis Drake

### **Response to Comment 14**

The statement cited is an excerpt from the basic project description and is intended to provide a brief overview of the project. A more comprehensive description of the project components is included later in the same section under the “Project Description” subheading, which includes viewing areas. A bridge crossing Corte Madera Creek is not part of this Phase I project and thus, was not included in the IS/MND. Refer to “Response to Comment 6” regarding Phases I and II.

### **Response to Comment 15**

As described above, a bridge crossing over Corte Madera Creek is not a component of Phase I, but would be a component of the potential Phase II project. Although the Initial Study includes a brief description of the Phase II concepts, Phase II is not funded and is not included as part of the scope in the IS/MND for the subject project. Phase I is a stand alone project that could be fully operational without the addition of any future phases. Phase II was not included in the evaluation of impacts because it is not a funded project, is subject to change, and the impacts are not certain to occur and cannot be anticipated. As a result, the IS/MND evaluated only the environmental impacts associated with the Phase I project. If Phase II were to be included in this analysis it would over estimate potential environmental impacts that may never be realized.

Viewing areas are listed as a component of Phase I (refer to page 6 of the IS/MND). The extension of the pathway into the marsh area is not intended to solely provide additional viewing opportunities of the creek, but required to adhere to ADA standards. The area where the pathway goes through the old railroad trestle (portions of the railroad trestle will be removed at this location) was widened to improve safety by separating the bicyclists from pedestrians at that location. The secondary benefit of having a larger area contributes to creating additional viewing areas of creek. Additionally, the proposed project is located within the BCDC’s jurisdiction and one of the requirements of the BCDC is to “provide maximum feasible public access.” Evaluation of public access includes considerations for viewing opportunities (i.e., “overlook decks”).

The current design reflects the consideration of many factors, which includes, but is not limited to, the safety of all users, adherence to ADA standards, and minimizing impacts to the marsh area south of East Sir Francis Drake Blvd. The current design as proposed in the IS/MND considers design factors such as width, clearance to obstructions, signing and delineation, design speed of bicyclists, horizontal alignment and superelevation, stopping sight distance, vertical curve requirements, drainage, lighting, and line of sight around curves, as well as minimizing impacts on the marsh area. For these reasons, a longer ADA compliant ramp was chosen to bring users from the East Sir Francis Drake Blvd. overcrossing down to the sidewalk level. Numerous alternative alignments were evaluated during the preliminary design stages, including the consideration of the suggestions listed in your letter, as well as an alignment that had a larger footprint and extended farther out into Corte Madera Creek.

### **Response to Comment 16**

It is unclear as to specifically which portion of the impacts discussion and the mitigation measures the commenter claims is “vague.” It is assumed that the commenter is referring to the discussion of biological impacts and the proposed mitigation measures associated with them. The IS/MND (refer to Page 62) clearly describes the anticipated direct and indirect impacts associated with the proposed project.

“Direct effects include the installation of permanent structures associated with the multi-use pathway in the salt marsh and Corte Madera Creek; the presence of construction crews and equipment within the Study Area; and the associated noise disturbance, ground vibrations, and dust generated from use of heavy equipment. Indirect effects include an increase in pedestrian and bicycle traffic in the salt marsh area, which would also likely result in an increase in the amount of trash and debris that may further degrade the quality of the habitat. Also, direct shading from construction of the multi-use pathway would inhibit pickleweed growth, which would reduce salt marsh habitat.”

The commenter does not specifically identify which of the proposed mitigation measures are “vague.” However, it is assumed that the comment is referring to Mitigation Measure 2 (Wetland Habitat Restoration). The implementation of this mitigation measures will reduce the impacts to the salt marsh area to a less than significant level and will also result in the creation or restoration of wetland habitat in a greater ratio than what will be disturbed (2:1 ratio for on-site and 3:1 ratio for off-site mitigation). Furthermore, coordination with federal and state regulatory agencies is a requirement of this mitigation measure and will ensure that the project is in compliance with federal and state laws related to protection of sensitive resources. Specifically, the USACOE, USFWS, and CDFG are all discretionary permitting agencies that will require sufficient mitigation to offset the impacts to sensitive biological resources prior to the issuance of any permits to perform the work. The adoption of the IS/MND requires that all mitigation measures are implemented, which provides certainty that the impacts to the wetlands will be offset. TAM recognizes the importance of such sensitive habitats and is committed to minimizing impacts from the proposed project. To this end, TAM has endeavored to avoid, minimize, and mitigate for impacts to sensitive habitats and species, which has been reflected in the design process. We also recognize that there are limited opportunities in the area for creation or restoration of wetland habitats in the project vicinity, and will investigate the best option for mitigation in coordination with the before mentioned agencies.

### **Response to Comment 17**

An EIR is not required for this project because the impacts associated with it would be reduced below a significant level through the implementation of the proposed mitigation measures. Although only an evaluation of the preferred alternative is required for an IS/MND, numerous alternative alignments were evaluated during the initial concept development phase of this project, including an alternative similar to the one proposed in your letter. The suggested alternative alignment (spiral or stacked ramp) would require a multi-level structure to bring users on the elevated overcrossing down to the sidewalk level. The ramps associated with this structure would have a series of blind turns that would create conflicts between bicyclist and

pedestrians. The “line of sight” for bicyclist traveling on the spiral structure would be poor, unless the spiral is increased in diameter, which would result in more impacts to the wetland area and Corte Madera Creek. Additionally, a portion of the spiral structure would not be visible from the street and the pathway along Sir Francis Drake, and blind spots would be created by the structure that will decrease user safety (i.e., increase the potential for lurking and criminal activities). Also, this massive structure would require major relocation of underground utilities. This type of structure would require the placement of foundations in an area that has an extensive network of underground utilities, including a 78 inch diameter sewer mainline. The foundation for the spiral structure would need to be designed to minimize conflicts with the utilities, which would require locating the structure toward and into the creek and wetland areas.

The multi-level structure at Lucky Drive cited as an example of the type of structure proposed as an alternative design does not meet the standards for ADA compliance and cannot be used for this project because of this deficiency.

An alternative alignment along the west side of the trestle was also evaluated, but not carried forward. This alignment would require major relocation of utilities and other costly impacts, as well as complicate the connection to the existing multi-use pathway. This alternative would also encroach into the wetland area. Refer to “Response to Comment 10” for additional alternatives evaluated.

The current design reflects the consideration of many factors, which includes, but is not limited to, the safety of all users, adherence to ADA standards, and minimizing impacts to the marsh area south of East Sir Francis Drake Blvd. The current design as proposed in the IS/MND considers design factors such as width, clearance to obstructions, signing and delineation, design speed of bicyclists, horizontal alignment and superelevation, stopping sight distance, vertical curve requirements, drainage, lighting, and line of sight around curves, as well as minimizing impacts on the marsh area. For these reasons, a longer ADA compliant ramp was chosen to bring users from the East Sir Francis Drake Blvd. overcrossing down to the sidewalk level. As a compromise, a maximum ADA compliant slope of 4.9% on ramps and maximum slope of 8.33% on ramps with landings were used to help minimize the current ramp lengths and potential impacts to Corte Madera Creek.

### **Response to Comment 18**

It is anticipated that approximately 47 trees could be removed as part of the project due to unavoidable project constraints. These constraints include the following: matching the alignment of the Cal Park Hill Tunnel Rehabilitation Project, keeping the proposed project within the existing SMART right-of-way, avoiding the existing railroad trestle, accommodating a potential extension of the SMART facility to the south, and avoiding the location of the future SMART Station. For these reasons, the current alignment was chosen.

Although, mortality from Sudden Oak Death Syndrome is a serious condition for oak trees in Marin County, the discussion of the impact on the loss of trees was focused on predictable impacts as a result of the project (i.e., trimming and removal). Specifically, these impacts are related to loss of potential nesting habitat for birds protected under the Migratory Bird Treaty Act. As a result, the project committed to replacement of removed trees at a 2:1 ratio for

heritage trees 15–24 inches in diameter and at a 4:1 ratio for trees greater than 24 inches in diameter” per the City's requirement. Tree replacement will consider on-site replanting first, and then off-site, if on-site isn't feasible. This is acceptable mitigation when avoidance of tree removal isn't feasible.

### **Response to Comment 19**

The intent of this project is to provide a multi-use pathway connection from the Cal Park Hill Tunnel Rehabilitation Project and SMART Larkspur Station to the existing multi-use pathway located south of East Sir Francis Drake Blvd. along the north bank of the Corte Madera Creek (i.e., Phase I). The project is **not** intended to plan and implement Phase II. Phase II is currently a speculative and conceptual project that is not funded at this time. Phase I has been designed so that it will not preclude a possible future multi-path crossing of Corte Madera Creek should future funding becomes available.

Refer to “Response to Comment 13” regarding a requested cumulative impact assessment.

### **Response to Comment 20**

It is common for the lead agency to be the responsible agency for ensuring implementation of the mitigation measures. TAM is committed to, and will be required to ensure that all mitigation measures are carried through. TAM does not view this as a conflict of interest.

### **Response to Comment 21**

Your comment is noted. However, a focused EIR is not required for this project because the impacts associated with it would be reduced below a significant level through the implementation of the proposed mitigation measures.

Please refer to “Response to Comment 13” related to cumulative impacts, alternatives analysis, and sufficiency of mitigation measures.

July 1, 2010

Bill Whitney  
TAM Project Manager  
750 Lindero Street, Suite 200  
San Rafael CA 94901

Dear Mr. Whitney:

I appreciated meeting and talking with you at the June 17 open house at Redwood High School to learn more about the Central Marin Ferry Connection Multi-use Pathway Phase 1 and related improvements and developments across Corte Madera Creek.

My wife and I most often drive between our home in Marin Park and the north side of Corte Madera creek to use Bon Air Shopping Center, Larkspur Landing and the ferry terminal, but we also walk and bike to them. Improved access and paths for walking and biking are very useful to us and we support the Phase 1 improvements. The exact location and construction details of this project will be of interest and we will follow them and may make comment as they unfold.

Of greater impact to us will be improvements that span the creek and improve access and passage along the existing sidewalk/pathway bordering Highway 101 to the South. Your mention that improvements may be coordinated in conjunction with Department of Transportation highway projects for this area is welcome and we will likewise follow and comment as we learn more.

I was pleased to learn of public interest by other residents and area users, several of whom I met at the open house, and to learn about the group that walked this section and which included the previous manager of Marin Park. My wife and I will greatly appreciate being notified of future information, activities and meetings on this subject.

Phase 2 development is of utmost critical interest to us. We want to be actively involved in decisions about the Phase 2 options.

Our residence is the last mobile home at the east end of Marin Park Row E and is within 30' of one of the pathway options envisioned to link to Wornum Drive. The design and every aspect of construction and use will affect us directly. Please inform us of all future information, activities and meetings about Phase 2.

Thank you,

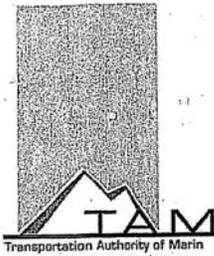
Anthony M. Mekisich  
2130 Redwood Highway, E-21  
Greenbrae CA 94904

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415-388-3960

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## **Response to Comment 22**

TAM will continue to provide the public with opportunities to provide input and comment on the proposed Phase I project. Although Phase II concepts were examined and presented at the June 17, 2010 Open House, Phase II has not been funded or approved at this time. TAM encourages public participation and will provide opportunities for input if Phase II were to become funded and approved. Please continue to seek out these opportunities by contacting TAM.



COMMENT CARD

Central Marin Ferry Connection Multi-use Pathway Phase I Project

Please submit written comments today or mail by July 2, 2010 to:

Transportation Authority of Marin
CMFC Multi-use Pathway Phase I Project
Attn: Bill Whitney, TAM Project Manager
750 Lindero Street, Suite 200
San Rafael, California 94901

Name: Richard Atwood Phone: 415.990-8788
Address: 14 E. San Francisco Blvd Suite C, Sausalito, CA E-mail: atwoodrichard@sbcglobal.net

Please provide comments on the adequacy of the Draft Initial Study/Mitigated Negative Declaration (IS/MND):

Dear Transportation Authority of Marin,
Thank you for the opportunity to submit my comments regarding the Draft Initial Study/Mitigated Negative Declaration.
There are a number of concerns I have regarding the current proposal and they are as follows: (Please see attached comments and details)

Please use the reverse side or attach any additional pages

Page 1

7/1/2010

Re::Central Marin Ferry Connection Multi-use Pathway Phase 1 Project

Continuation of Comments from Comment Card

1) THE MARSH AND BAY FRONT

23 | The current proposal for the multiuse path crosses Sir Francis Drake Blvd., then, travels over the salt march for approximately 200 feet. There is a raised 50 + foot wide viewing platform and then the multiuse path returns back to Sir Francis Drake Blvd., another 150 to 200 feet. The total length is 350 to 400 feet of concrete structure covering the salt marsh. This structure, though well intended, will have a terrible impact on our habitat.

24 | The current proposal for a multipath crosses a maximum amount of salt marsh. A marsh, that provides Oxygen and Water Cleansing here, for all of us and wildlife to enjoy in our urban area. Not in an Offset Mitigation Bank or in some Distant Area that is less expensive to acquire, per Policy Bio 3.2, page 26 in Initial Study / Mitigation Negative Declaration. Avoidance of Wetlands is possible or can be greatly reduced by considering another option. Please see Detail (1) attached. I apologize for my poor drafting skills. The attached details are presented for conceptual purposes only. The location of the Spiral Ramp places it mostly on filled land. Being a stacked structure will also reduce non-porous surface runoff. The current proposal creates a large non-porous surface that will concentrate water loads during times of heavy rains and flooding.

2) COST

I understand the Central Marin Ferry Connection / Multiuse Pathway is part of an already passed and funded bond measure.

In these tough economic times, or anytime for that matter, cost savings need to be explored. Please see Details (1,2 and 3). Again, I apologize for my drafting skills. I was in a bit of a rush, as I did not receive the Draft Initial Study / Mitigation Negative Declaration hard copies until last Tuesday morning on June 29<sup>th</sup>, 2010. I was provided with a disk copy a couple of weeks earlier, however, it was very difficult to read.

25 | Please note, I am proposing an alternative for the multipath. Beginning at the proposed train station (behind Marin Airporter), then heading South using the existing slope of the railroad embankment, Detail (3). The multipath will rise, meeting ADA requirements as it heads South. This cut and fill design with a metal railing on the down hill side of the multipath will reduce scale, mass and may reduce costs over an elevated concrete multipath structure. This design should work as a much larger cut has been made in the railroad embankment just North of the Cal Park Tunnel.

The multipath would then cross the SMART tracks at or cut below the existing track grade, (No Tunnel Required). This crossing can be at a gentle angle for bicyclists at speed. Once on the other side, (West side), the multipath will continue to the bridge over Sir Francis Drake Blvd. or turning down to the proposed bus stop on the Highway 101 onramp, using the same cut and fill design in detail (3) cross section.

26

If a future South bound SMART rail line was ever built, (at a truly incredible price considering the short run to the South), it would need to be elevated to pass over the Corte Madera Creek and meet height clearances for boats, U.S. Army Corps of Engineers, Cal Trans and other agencies for dredging and access to Highway 101 in the event of earthquake damage. A rise of 1% is 1 foot rise per 100 feet of track. I believe the minimum clearance over the Corte Madera Creek is 25 feet, or similar to Highway 101 and some bike path proposals over the Corte Madera Creek. The present grade of the railroad is approximately in the 14 to 16 foot range. This would be a 9 to 11 foot rise in grade at 1% grade. In the event SMART proposes a draw bridge, the multipath crossing can move back closer to the proposed train station and have a deeper cut through the present railroad grade, (no tunnel, because a future SMART railroad line would still be elevated). This would require SMART to decide now what type of bridge would pass over Corte Madera Creek, or be realistic as to the costs involved in such an undertaking and allow the crossing of their tracks for the multipath.

Once on the West side of the existing railroad tracks, the Central Marin Ferry Connection Multi-use Pathway Phase 1 Project bridge plan would be a good solution.

27

Another solution would be to build a Timber / Glue Lam Bridge with Plank Decking. I love the sound of riding my bike over wood decking. This would be a wonderful reference to the old NWP Railroad trestle that was removed and would be a friendly and iconic structure. Meet me at the wood bridge. This may be more cost effective as well.

Once on the South side of Sir Francis Drake Blvd., you would descend on a concrete spiral ramp located on the West side of the old railroad trestle down to street level and other bike paths. The top of the Spiral Ramp should be designed for a possible extension of the multipath straight over the Corte Madera Creek, see detail (1). This landing would already be elevated for an easier direct future crossing over the Corte Madera Creek.

The Spiral Ramp would need to be located and designed to avoid underground utilities.

Instead of removing a section of the old trestle adjacent to the Corte Madera Creek, a section of the old trestle could be removed adjacent to the Spiral Ramp so that the existing bike path could access the existing wood bridge over the marsh.

Page 3

MY BUILDING AT 12 E. SIR FRANCIS DRAKE BLVD.

This issue is a personal one. I am the owner of the building at 12 E. Sir Francis Drake Blvd. The building, that this large concrete multipath ramp is adjacent to. This is a grossly unfair burden to my tenants and I.

I have 9 tenants in 12 E.SFD Blvd. who in part rented their suites because of the beautiful West light and views of Mt. Tamalpais and the marsh. This will all change if the proposed multipath concrete ramp is built.

All of the tenants will be cast in to darkness and the views of Mt. Tamalpais and the marsh gone. The rental values could be affected. The value of the building could be affected. The marsh will die in the dark area under the concrete multipath ramp and in the narrow area between the ramp and my building.

28

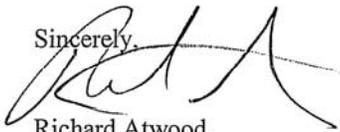
There is also a potential problem with people throwing trash and bottles on the roof, damaging AC systems and other equipment. Or, climbing on the roof and damaging the building and using Graffiti, or other purposes.

Most of the tenants have desks or offices facing West for the views and light. With the proposed multipath ramp and people staring into the tenants spaces from very close proximity, privacy will be lost. Business as usual will be disrupted. Please refer to Visual Resource Impact Assessment Report Version 1, Viewing Audience, Section 2 should include the effect of proposal on view from private property.

Those are my comments at this time.

Thank you again for allowing me to be involved with this process.

Sincerely,



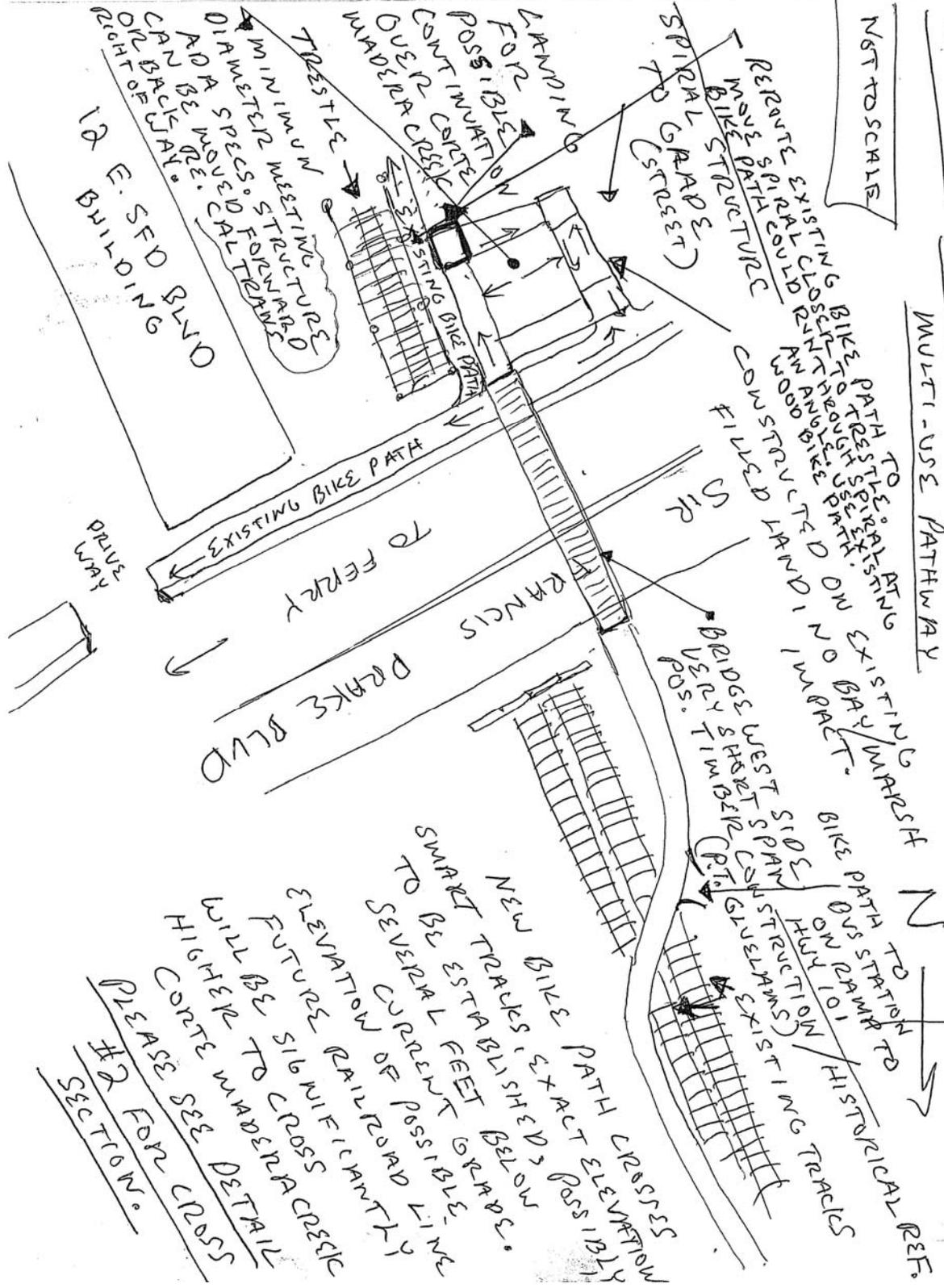
Richard Atwood  
14 E. Sir Francis Drake Blvd. Suite C  
Larkspur, Calif. 94939

Detail 1

CENTRAL MARQUETTE FERRY CONNECTION

MULTI-USE PATHWAY

NOT TO SCALE



NEW BIKE PATH CROSSES WATERA CREEK AT A LOWER ELEVATION THAN THE EXISTING RAILROAD LINE. SMART TRACKS, ESTABLISHED BELOW TO BE SEVERAL FEET GRADIENT TO SEVERAL FEET GRADIENT. ELEVATION OF RAILROAD LINE WILL BE SIGNIFICANTLY HIGHER TO CROSS WATERA CREEK. PLEASE SEE DETAIL SECTION FOR CROSS SECTION.

7/1/10

Detail 2

CENTRAL WARRIOR FERRY CONNECTION

7/1/10

NOT TO SCALE

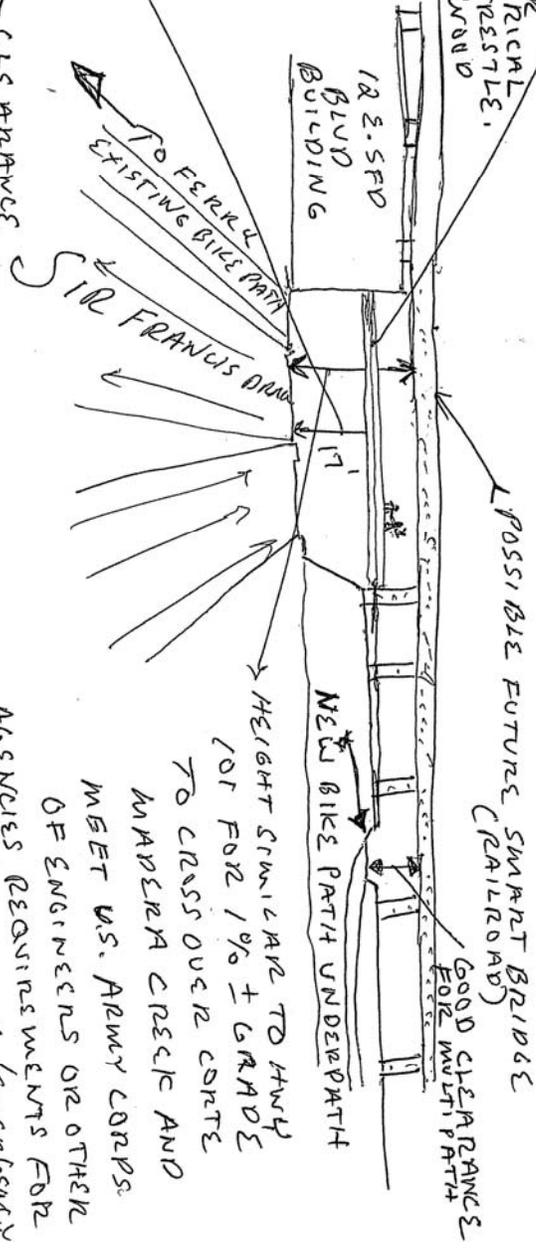
MULTI-USE PATHWAY

CROSS SECTION LOOKING WEST N →

SHOWING BIKE PATH CROSSING UNDER POSSIBLE FUTURE SMART RAILROAD BRIDGE STRUCTURE OVER SIR FRANCIS DRAKE BLVD.

NEW MULTIPATH BRIDGE OVER SIR FRANCIS DRAKE BLVD. POS. TIM BERK AT GLENNAMS, HISTORICAL REFERRED TO OLD TRESTLE WITH LIGHT WEIGHT WOOD DECIDING WITH OR WITHOUT CENTER COLUMN. VERY LOW COST TO BUILD.

17' MINIMUM CLEARANCE FOR NEW MULTI PATH BRIDGE.



COSTS FOR DRAW BRIDGE WOULD BE INCREASING AND COSTS OF RAILROAD BRIDGE STRUCTURE WOULD BE INCREASING.

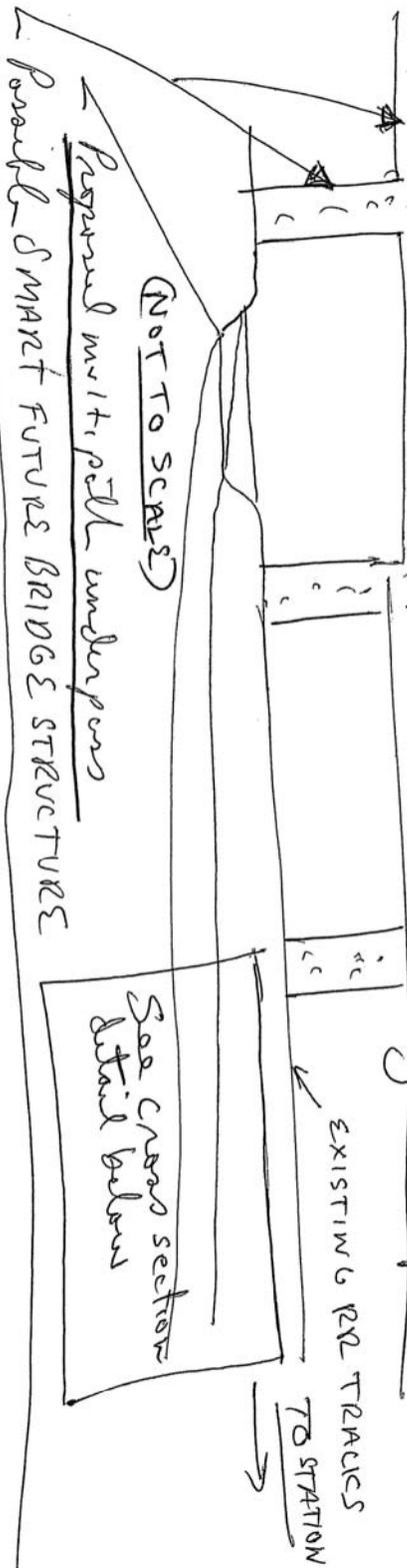
AGENCIES REQUIREMENTS FOR ACCESS / DRIVING / EMERGENCY EARTHQUAKE AND OTHER REPAIRS TO HWY 101, AND FOR BOATS TO PASS.

Detail (3)

Central Marine Ferry Connection



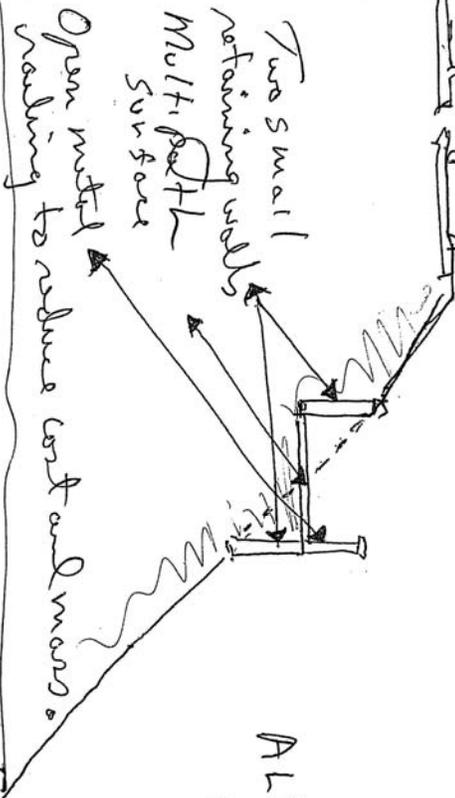
Multi-Use Pathway Underpass



EXISTING RAILROAD TRACKS

CROSS SECTION OF MULTIPATH USING  
CUT AND FILL DESIGN WITH  
TWO SMALL RETAINING WALLS  
LOOKING NORTH TOWARDS  
MARIN AIRPORTER PARKING  
LOT.

ALL ADA SLOPE REQUIREMENTS  
CAN BE MET AS IT RISES  
FROM THE STATION TO THE  
UNDER PASS. THIS SAME  
DESIGN CAN BE USED ON  
THE OTHER SIDE LEADING  
TO THE PROPOSED BUS STOP  
ON THE HIGHWAY 101 ON RAMP.



### **Response to Comment 23**

The implementation of the proposed Mitigation Measures 2 (Wetland Habitat Restoration) and 6 (Replant/Re-seed Marsh Habitat) will reduce the impacts to the salt marsh area to a less than significant level and will also result in the creation or restoration of wetland habitat in a greater ratio than what will be disturbed (2:1 ratio for on-site and 3:1 ratio for off-site mitigation). Coordination with federal and state regulatory agencies is a requirement of Mitigation Measure 2 and will ensure that the project is in compliance with federal and state laws related to protection of sensitive resources. Specifically, the USACOE, USFWS, and CDFG are all discretionary permitting agencies that will require sufficient mitigation to offset the impacts to sensitive biological resources prior to the issuance of any permits to perform the work. The adoption of the IS/MND requires that all mitigation measures are implemented, which provides certainty that the impacts to the wetlands will be offset. TAM recognizes the importance of such sensitive habitats and is committed to minimizing impacts from the proposed project. To this end, TAM has endeavored to avoid, minimize, and mitigate for impacts to sensitive habitats and species, which has been reflected in the design process. We also recognize that there are limited opportunities in the area for creation or restoration of wetland habitats in the project vicinity, and will investigate the best option for mitigation in coordination with the before mentioned agencies.

### **Response to Comment 24**

The current design reflects the consideration of many factors, which includes, but is not limited to, the safety of all users, adherence to ADA standards, and minimizing impacts to the marsh area south of East Sir Francis Drake Blvd. The current design, as proposed in the IS/MND, considers design factors such as width, clearance to obstructions, signing and delineation, design speed of bicyclists, horizontal alignment and superelevation, stopping sight distance, vertical curve requirements, drainage, lighting, and line of sight around curves, as well as minimizing impacts on the marsh area. For these reasons, a longer ADA compliant ramp was chosen to bring users from the East Sir Francis Drake Blvd. overcrossing down to the sidewalk level. As a compromise, a maximum ADA compliant slope of 4.9% on ramps and maximum slope of 8.33% on ramps with landings were used to minimize the current ramp lengths and potential impacts to Corte Madera Creek.

The suggested spiral ramp alignment would also impact the mitigation for reducing the impacts of impervious areas, by eliminating the bioswales that are proposed on the north and south sides of East Sir Francis Drake Blvd. These bioswales would be used to filter out sediments of storm water prior to entering the wetlands.

Placing the suggested spiral structure adjacent to East Sir Francis Drake Blvd. was considered during the initial design concept phase. However, vehicle safety traveling along East Sir Francis Drake Blvd. was a concern. Currently it is difficult to pull in and out of the parking lots on your property. A larger more obtrusive structure placed adjacent to East Sir Francis Drake Blvd would likely reduce the line of sight for traffic entering East Sir Francis Drake Blvd. from the US Highway 101 off-ramp, and for traffic entering and leaving the parking lots on your property. As

a result, vehicle access to your property would be more difficult. Caltrans approval would also be required as the spiral would impact Caltrans' right-of-way at the interchange.

Additionally, the suggested spiral ramp alignment would also impact the mitigation for reducing the impacts of impervious areas, by eliminating the bioswales that are proposed on the north and south sides of East Sir Francis Drake Blvd. These bioswales would be used to filter out sediments of storm water prior to entering the wetlands.

Refer to Response to Comment 10 for additional alternatives evaluated.

### **Response to Comment 25**

As noted above, the design team has studied numerous design alignments as part of the initial concept development phase of the project. We are currently proposing cut and filled slopes for much of the multiuse pathway from the Cal Park Hill Tunnel Rehabilitation Project to the south beyond the future SMART station towards East Sir Francis Drake Blvd. This would also apply to the alignment that you are proposing. Early design concepts considered crossing the existing railroad tracks north of East Sir Francis Drake Blvd. and resuming an alignment on the west side of the tracks. However, this concept was not carried forward for the following reasons:

- It is unsafe for users to cross the tracks at grade and requires California Public Utilities Commission (CPUC) approval.
- An at grade crossing of the tracks will preclude SMART from being able to temporarily store trains at the end of their line with out blocking the multi-use pathway.
- A tunnel for a below grade track crossing was dropped due to the added cost and potential lurking issues.
- The multi-use pathway alignment west of the railroad embankment was dropped due to the cost of utility relocations.
- Additional state-owned right-of-way acquisition would be required.

### **Response to Comment 26**

TAM has been working closely with SMART on coordinating the proposed design for the future Larkspur Station and considerations of any future track extensions to the south crossing over Corte Madera Creek. The TAM design team studied the future SMART crossing of Corte Madera Creek, which included consideration of the allowable grades for future SMART trains, the type of structure, vertical clearances over East Sir Francis Drake Blvd. clearances over Corte Madera Creek, the future train bridge depth, width and the interactions between pathway users and the future train bridge. As a result, TAM, in cooperation with SMART, has developed the alignment that is proposed in the IS/MND. SMART also consulted with an independent engineer to study the interaction between the proposed pathway and any future expansion of the SMART rail line over Corte Madera Creek. Both the TAM design team and the independent

design team concluded that the proposed pathway would not preclude the future expansion of the SMART rail line. SMART is supportive of the current proposal that is in the IS/MND.

### **Response to Comment 27**

Currently a bridge type has not been selected. A timber structures in general can be less expensive than concrete or steel structures. However, there are many factors that need to be considered when selecting a bridge type such as the effect of the environment on bridge materials, the lifetime maintenance cost, fire rating issues, and vehicle impacts.

Refer to Response to Comments 17 and 24 regarding the reasons for removing a multi-level structure from consideration.

### **Response to Comment 28**

It is important to note that the railroad has been owned and operated within the adjacent parcel since the late 1800's, prior to your purchase of your property. This parcel has since been deeded to SMART for use as a future railroad corridor. A portion of the existing timber trestle will be removed as part of the project, which will increase the views to the west and Mt Tamalpais. The railroad right-of way is also currently zoned for planned development per the City of Larkspur General Plan. The proposed multi-use path also meets the goals of the City of Larkspur General Plan for the existing railroad right-of-way (Goal 15, Land Use Policies and Programs).

Although the VIA team has not seen the private views from this building, it is likely that Corte Madera Creek, the salt marsh, and Mt. Tamalpais can be seen from the building's windows. It is also likely that these views are partially blocked by the existing railroad trestle within the foreground of these views. The proposed multi-use pathway ramp would be located within 40 feet of the building's west side, and the bridge height would partially block views to Mt. Tamalpais and sunlight from the west.

TAM is committed to working with landowners during the detail design phase to exam screening, fencing or barrier options that would minimize impacts to property.

Administration 415 927-5110  
Customer Service  
  
Fire 415 927-5007  
Public Works 415 927-5017  
  
Recreation 415 927-6746  
Library 415 927-5005



Planning 415 927-5038  
Building Permits  
  
Twin Cities Police 415 927-5150  
  
Fax 415 927-5022  
Web www.ci.larkspur.ca.us

## CITY OF LARKSPUR

July 2, 2010

VIA email (2 pages) and mail

Bill Whitney  
TAM Project Manager  
750 Lindaro Street, Suite 200  
San Rafael, CA 94901

RE: Central Marin Ferry Connection Project (Phase I); Initial Study / Mitigated  
Negative Declaration

Dear Mr. Whitney:

Thank you for the opportunity to review both the preliminary draft and the final version of the Initial Study / Mitigated Negative Declaration prepared for the CMFC project (phase I).

29 | As noted in my email of May 13, 2010, the project description lacks adequate  
description of the proposed design for the structure, in terms of materials, architectural  
detailing, and the relationship to the remaining trestle structure (comment #1 and #2).  
30 | The photo simulation (Figure 3) on page 7 is unattractive and inconsistent with the  
character of other public improvements in the area. The various simulations show a  
central column support, which is not preferred by our Public Works Department. We  
also note that the visual analysis has not been expanded to include views from nearby  
residences and homes in the Greenbrae hills (comment #8). Although the document  
identified that the project is subject to a heritage tree removal permit and encroachment  
permit approval from the City of Larkspur, the document does not identify the  
requirement for design review approval for public uses and structures per Municipal  
Code Section 18.64.020.C(5). Without the benefit of more detailed information and an  
outline of local review process, the City of Larkspur is not assured that the project would  
31 | not substantially degrade a scenic vista open to the public and/or conflict with local  
aesthetic or visual design review standards (Section 13.a).

We are hopeful that in response to these comments, you will add the local design review application process within the 'other permits' section of the document, or at a minimum, identify the commitment and process proposed to engage the City of Larkspur in the final design determinations.

My May 13, 2010 email response is attached for reference. Please call me at 927-6713, if you have any further questions.

Sincerely,

Neal Toft  
Senior Planner

C: Nancy Kaufman  
Hamid Shamsapour

### **Response to Comment 29**

The design of the pedestrian overcrossing has not yet been finalized and the bridge type has not been selected. As a result, details related to the final design (i.e., materials and architectural detailing) of the overcrossing are not yet available. The current design, as presented in the IS/MND shows the relationship between the proposed multi-use pathway and existing trestle. The attractiveness of the proposed structure is subjective. However, TAM will consider other public improvement projects in the area and obtain public input during the final design prior to going before the TAM board.

### **Response to Comment 30**

It is acknowledged that the Visual Impact Assessment (VIA) technical report does not include a visual simulation of the proposed project as viewed from homes and residents in the Greenbrae Hills. The VIA strives to determine the response of the viewing audience by simulating the proposed project within the important public views. The three viewpoints selected for photo simulations were chosen based on high exposure to the project. A large number of pedestrians, bicyclists and motorists would view the project from public travel ways such as U.S. Highway 101, East Sir Francis Drake Blvd., and the existing Corte Madera Creek pathway.

From the Greenbrae Hills, views of the proposed project would be available to fewer people and primarily from the backyards of private homes on the east side of Via La Cumbre. It is likely that the new multi-use pathway adjacent to the east side of U.S. Highway 101 would be visible from the back yard of these private homes as they are at a much higher elevation than the freeway and the new multi-use pathway. It is also possible that the pedestrian bridge over East Sir Francis Drake Blvd. and multi-use ramp connecting to the existing Corte Madera Creek pathway would be partially visible from these homes. The U.S. Highway 101 overpass over East Sir Francis Drake Blvd. and the creek may partially obscure the view to the project. Overall, views of the proposed project would be set within the middle ground of a panoramic view of U.S. Highway 101, Corte Madera Creek and the houseboats along Greenbrae Boardwalk, the cities of Larkspur and Corte Madera, and the San Francisco Bay. As a result, the proposed multi-use pathway is not anticipated to result in a significant impact to visual resources from the Greenbrae Hills residents.

Architectural details, materials, etc. have not yet been determined and will be selected as part of the design. It is not the intent of the visual simulation to indicate or depict the level of detail require to reveal an attractive structure. Public Agencies, such as TAM, are not subject to the planning requirements as per the City of Larkspur Municipal Code Section 18.64.020.C(5). However, TAM intends to work very closely with the City of Larkspur and SMART during the design process. The City's input and design criteria regarding the pedestrian overcrossing will be presented to the TAM Board for a final decision.

### **Response to Comment 31**

The design of the pedestrian overcrossing has not yet been finalized and the bridge type has not been selected. TAM is aware that the Larkspur Public Works department prefers that the bridge

span the roadway without a center column in the median. The final design for the pathway has not been completed and it has not yet been determined if a center column will be used as part of the proposed overcrossing. The photo simulations presented in the IS/MND (page 7) only shows the option that includes a center column, but is not an indication of a final design preference. A column in the center of East Sir Francis Drake Blvd. would result in a thinner structure and may have some cost savings advantages. Additionally, the photo simulations presented in the IS/MND are preliminary and were included to provide the public with a general overview of multi-use pathway overcrossing should the final design include a fence on the overcrossing. A decision regarding the placement and design of a fence will require further discussion with the agencies involved. TAM intends to work very closely with the City of Larkspur and SMART to ensure community acceptance during the design process. The City's input and design criteria will be presented to the TAM Board for a final decision.



*Making San Francisco Bay Better*

July 2, 2010

Transportation Authority of Marin  
750 Lindero Street, Suite 200  
San Rafael, California 94901

**ATTENTION:** Bill Whitney

**SUBJECT:** Central Marin Ferry Connection Multi-Use Pathway  
Phase 1 Project, City of Larkspur, Marin County  
(BCDC Inquiry File No. MR.CM.71116.5)

Ladies and Gentlemen:

On June 3, 2010, the San Francisco Bay Conservation and Development Commission (Commission) staff received the Mitigated Negative Declaration (MND) for the Central Marin Ferry Connection Multi-Use Pathway Phase 1 Project, located along U.S. Highway 101 and East Sir Francis Drake Boulevard, in the City of Larkspur, Marin County. The proposed Phase 1 project includes a new multi-use pathway extending on pile-supported fill from the existing Cal Park Hill Tunnel Pathway over East Sir Francis Drake Boulevard and above the salt marsh adjacent to Corte Madera Creek, new pedestrian connections, and on-ramps and off-ramps to US Highway 101.

Although the project is not specific enough at this time for us to comment on every potential issue this project may raise with respect to the Commission's laws and policies, we do have several comments on these conceptual plans that should be addressed as this project moves forward. As the project is further developed, we will be able to provide more detailed responses and can work closely with your staff to assure the project's consistency with the Commission's laws and policies. Although the Commission itself has not reviewed the Mitigated Negative Declaration, the staff comments are based on the McAteer-Petris Act, the Commission's San Francisco Bay Plan (Bay Plan), the Commission's federally approved management plan for the San Francisco Bay, and the federal Coastal Zone Management Act (CZMA).

### **Jurisdiction**

32 The Commission's permit jurisdiction includes all tidal areas of the Bay up to the line of mean high tide or the inland edge of marsh vegetation up to five feet above Mean Sea Level in marshlands, all areas formerly subject to tidal action that have been filled since September 17, 1965, and the shoreline band extending 100 feet inland from and parallel to the shoreline. The Commission also has jurisdiction over all named sloughs and certain waterways. Commission permits are required for fill placement, construction, dredging and substantial changes in use within its area of jurisdiction. The proposed Central Marin Ferry Connection Phase One project appears to be located in the Bay and within the 100-foot shoreline band, and thus, would require a Commission permit.

### **Bay Fill**

33 Section 66605 of the McAteer-Petris Act sets forth the criteria necessary for the Commission to authorize placing fill in the Bay and certain waterways. According to Section 66605, fill in the Bay can be authorized by the Commission only when: (a) the fill would constitute the minimum necessary to achieve the project purpose; (b) no alternative upland location exists; (c) the public benefits of the fill exceed the public detriment from the loss of water areas; (d) the fill would occur on land to which the project proponent has adequate title; (e) the activity would minimize harmful effects to the Bay's natural resources; and (f) the fill would be constructed according to sound safety standards. The project sponsor should consider these issues for any element of the project that would involve Bay fill. Additionally, any portion of the project that would occur adjacent to or within a wetland or marsh area should consider any potential impacts of the proposed project on fish and wildlife, including any special-status species, and potential measures to avoid such impacts.

The Commission defines fill as solid, pile-supported and cantilevered fill in the Bay and in tidal marshes. We will need to know the total quantity of fill in the Bay. Regulation 10601(a)(8) states that up to approximately 1,000 square feet of fill for public access can be approved administratively. Once we better understand the amount of fill, we will be able to determine if this permit could be processed as an Administrative or Major Permit.

### **Public Access**

34 Section 66602 of the McAteer-Petris Act states, that "...maximum feasible public access, consistent with the proposed project, should be provided...." In evaluating a project's proposed public access, the Commission relies on the Bay Plan policies on public access to determine whether the project includes maximum feasible public access consistent with the project. Because the proposed activities would affect a portion of the Bay Trail, the project sponsor should consider the project's effect - temporary and long-term - on the Bay Trail and potential measures for off-setting any impacts such as minimizing trail interruptions, providing detours, etc. In order to evaluate the proposed public access, the project sponsor should include specific information about the proposed public access, including the length and width of the multi-use pathway, proposed amenities (e.g., benches, interpretive signage, overlook decks etc.), and the location of access points and parking areas.

Bill Whitney  
Transportation Authority of Marin  
July 2, 2010  
Page 3

We also recommend that the project take into account projected increases in sea level for the Bay Area to provide adequate flood protection and to ensure continued public use of the multi-use pathway over time.

**Water Quality**

35 The Bay Plan's policies on water quality state that, "new projects should be sited, designed, constructed and maintained to prevent, or if prevention is infeasible, to minimize the discharge of pollutants to the Bay..." by controlling pollutant sources at the project site, using appropriate construction materials, and applying best management practices. The project sponsors should evaluate the potential impacts of the proposed project on Bay water quality and should propose best management practices and mitigation measures to minimize adverse impacts to water quality, particularly from runoff from disturbed lands and the proposed new fill for the multi-use trail.

**Fish, Other Aquatic Organisms and Wildlife.**

36 The policies in this section of the Commission's San Francisco Bay Plan address the benefits of fish, other aquatic organisms and wildlife and the importance of protecting the Bay's subtidal habitats, native, threatened or endangered species and candidate species for listing as endangered or threatened. The Mitigated Negative Declaration identifies approximately 0.38 acres of temporarily impacted wetlands and approximately 0.03 acres of permanently impacted wetlands. While the MND outlines the impacts and some mitigation measures to the sensitive habitats, please provide further information on the potential mitigation site(s) and the type of habitat that would be created. We would be happy to work with the project sponsors to identify the location and amount of land to be mitigated. The Commission's mitigation policies recommend that mitigation sites "be sited and designed...as close to the impact site as practicable...[and include a monitoring program]..." Please also consult with the California Department of Fish and Game, the U.S. Fish and Wildlife Service and NOAA Fisheries to assist you in evaluating project impacts and possible mitigation.

Thank you again for the opportunity to comment on this project. If you have any questions, please do not hesitate to contact me at (415) 352-3669.

Sincerely,

  
KAREN WEISS  
Coastal Program Analyst

KW/mm

### **Response to Comment 32**

TAM is aware that proposed project would occur within the BCDC's jurisdiction and would require a Commission permit. The IS/MND (page 15) includes a BCDC Administrative Permit as a requirement for the proposed project.

### **Response to Comment 33**

The authorized activities have been noted. TAM contends that the proposed project would meet all of the noted criteria. Additionally, a Natural Resource Study has been prepared as part of this project which evaluates the potential impacts to fish and wildlife.

Previous consultation with BCDC via phone conversation (March 12, 2009) indicated that this project may be authorized using an Administrative Permit. However, TAM will ensure that coordination with BCDC occurs throughout the design process to determine permitting requirements.

### **Response to Comment 34**

The proposed project would allow for maximum feasible public access. Temporary and long-term impacts to the Bay Trail will be considered to minimize trail interruptions, provide detours, etc. The current design will be Americans with Disabilities Act compliant includes provisions for a public viewing area. Sea level rise was considered during the initial design phase and those considerations have been incorporated into the current design. Refer to the Location Hydraulic Study in Appendix G for details related to sea level rise.

### **Response to Comment 35**

Potential impacts of the proposed project on Bay water have been evaluated. Refer to the Water Quality Study technical report (Appendix G). Additionally, best management practices will be used to reduce the impacts of erosion and storm water runoff.

### **Response to Comment 36**

Coordination with federal and state regulatory agencies is required and will ensure that the project is in compliance with federal and state laws related to protection of sensitive resources. Discretionary permitting agencies will require sufficient mitigation to offset the impacts to sensitive resources prior to the issuance of any permits to perform the work. Mitigation sites and type of habitat will be determined through consultation with federal and state agencies, including BCDC as described in Mitigation Measure 2 (Wetland Habitat Restoration) in the IS/MND (page 62).

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

ARNOLD SCHWARZENEGGER Governor

**DEPARTMENT OF TRANSPORTATION**

111 GRAND AVENUE  
P. O. BOX 23660  
OAKLAND, CA 94623-0660  
PHONE (510) 622-5491  
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July 2, 2010

MRN-101-8.6  
MRN101423  
SCH 2010062009

Mr. Bill Whitney  
Transportation Authority of Marin  
750 Lindero Street, Suite 200  
San Rafael, CA 94901

Dear Mr. Whitney:

**Central Marin Ferry Connection Multi-use Pathway Phase I Project – May 2010 Mitigated Negative Declaration (MND)**

Thank you for including the California Department of Transportation (Department) in the environmental review process for the proposed project. We have reviewed the MND and have the following comments to offer.

**Environmental Processing**

37 Since the multi-use overcrossing is only one aspect of the overall Central Marin Ferry Connection project (CMFC), and a small part of the "...larger planning effort of the Greenbrae Corridor improvements..." (pg. 5), please consider preparing an environmental document that identifies the project in its entirety rather than separately in piecemeal fashion; environmental processing of the pathway overcrossing would then tier off of that. Such an approach is essential to providing context and full public disclosure necessary when evaluating project impacts and benefits. Evaluation of cumulative and growth-inducing impacts, to name only two issue areas, lacks substance without this kind of comprehensive approach. The MND should also discuss the intermodal connectivity between the CMFC overcrossing and the U.S. Highway 101 Greenbrae/Twin Cities Corridor Improvement Project (GCIP). The importance of presenting this project in the context of the, "...larger planning effort..." is underscored by reference to this effort in the MND as well as the expressed community interest in the overcrossing and its connection to the GCIP.

**Growth-Inducing**

38 Given the above comments, evaluation of growth-inducing impacts is applicable to the project, contrary to the "Not Applicable" assertion that "...the multi-use pathway would not induce growth in the area." (pg. 43, question 2b).

Mr. Bill Whitney/Transportation Authority of Marin  
July 2, 2010  
Page 2

39

**Cumulative**

Please provide a cumulative project list that identifies Pending and Approved projects in the area, including the entire Central Marin Ferry project and the GCIP, as well as an analysis of potential cumulative impacts to biological and visual resources, community impacts and any other potential impacts.

40

**Transportation/Circulation**

Please address the potential need for increased bicycle parking racks/lockers: (pg. 58, question 6d).

Please address the access and connection to transit buses in the area. Do the ferries and buses have the capacity to absorb additional demand? (pg. 58, question 6e).

41

**Encroachment Permit**

Please be advised that any work or traffic control that encroaches on State right-of-way (ROW) requires an encroachment permit issued by the Department, as stated in page 15 of the MND. Further information is available on the following website:

<http://www.dot.ca.gov/hq/traffops/developserv/permits/>

To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans clearly indicating State ROW must be submitted to the address below. Traffic-related mitigation measures should be incorporated into the construction plans during the encroachment permit process.

Office of Permits  
California DOT, District 4  
P.O. Box 23660  
Oakland, CA 94623-0660

Should you require further information or have any questions regarding this letter, please contact Connery Cepeda of my staff at (510) 286-5535.

Sincerely,



LISA CARBONI  
District Branch Chief  
Local Development – Intergovernmental Review

c: Scott Morgan (State Clearinghouse)

### **Response to Comment 37**

Although the Initial Study includes a brief description of the Phase II concepts, it is not funded or included as part of the scope in the IS/MND for the Phase I project. Phase I is a stand alone project that could be fully operational without the addition of any future phases. Phase II was not included in the evaluation of impacts because it is currently considered to be speculative and unfunded project. Additionally, the impacts are not certain to occur and can not be anticipated. As a result, the IS/MND only evaluated the environmental impacts of the Phase I project. If Phase II were to be included in this analysis it would over estimate potential environmental impacts that may never be realized.

The Greenbrae Corridor Improvements Project is a separate undertaking with separate schedules and funding plans. These two projects are identified separately in the Regional Transportation Plan. The Central Marin Ferry Connection Project is included in the aggregated funding for pedestrian/bicycle improvement throughout the County, while the Greenbrae Corridor Improvements Project is identified as a particular project. Furthermore, Regional Measure 2 also identifies these as separate independent projects. For this reason, the Greenbrae Corridor Improvement Project is not being considered as part of the same CEQA program and was not included in the environmental evaluation.

### **Response to Comment 38**

Phase I is not anticipated to induce growth. The proposed project is not a destination but rather an improvement to an existing route that connects several existing multi-use paths in the area. For this reason, the proposed Phase I project would not induce growth in the area. As described in Response to Comment 37, the two projects mentioned in the July 2, 2010 letter (Central Marin Ferry Connection Phase II and Greenbrae Corridor Improvements Project) were not included in the analysis of this proposed project. Phase II is not funded and may never go to construction, and the Greenbrae Corridor Improvements Project has independent utility and is a separate project with a defined purpose and need.

### **Response to Comment 39**

The level of documentation for this project (IS/MND) does not warrant a cumulative impacts assessment. As described above, the proposed Phase I project is a stand alone project. Although the Initial Study includes a brief description of the Phase II concepts, it is not funded or included as part of the scope in the IS/MND for the Phase I project. Phase I is a stand alone project that could be fully operational without the addition of any future phases. Phase II was not included in the evaluation of impacts because it is currently considered to be speculative and unfunded project. Additionally, the impacts are not certain to occur and can not be anticipated. As a result, the IS/MND only evaluated the environmental impacts of the Phase I project. If Phase II were to be included in this analysis it would over estimate potential environmental impacts that may never be realized.

Refer to Response to Comment 38 regarding the Phase II and Greenbrae Corridor Improvements projects.

#### **Response to Comment 40**

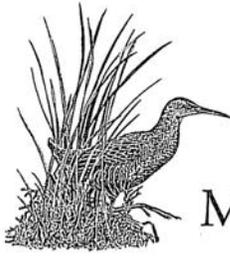
The proposed project is not a destination but rather an improvement to an existing route that connects several existing multi-use pathways in the area. TAM will address the need for additional bike racks and bike storage with the partnering transit agencies during the design phase.

The completed multi-use path will provide improved access to the existing Ferry Terminal and buses. An increase in bicycle users at these facilities is expected because the new pathway will make access to these facilities more convenient. The Ferry Terminal and transportation agencies will need to accommodate the need of their bicycle patrons as demand increases and alternative modes of transportation become more prevalent with the public. Currently the Ferry Terminal can accommodate up to 71 bikes and the buses can typically accommodate 2 to 3 bikes.

Parking at the Ferry Terminal is anticipated to benefit from the proposed project because it will improve non-motorized access, which would reduce the demand for parking. The Ferry Terminal owner is fully supportive of the proposed project for this reason. Furthermore, the Ferry Terminal owners continue to take steps to accommodate more bicycle parking and access to the ferry themselves.

#### **Response to Comment 41**

An encroachment permit will be obtained from Caltrans, if improvements in State right of way are implemented. Additionally, the construction plans will include traffic-related mitigation measures, if needed.



# Marin Audubon Society

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JUL 02 2010

Transportation Authority of Marin

P.O. Box 599 | MILL VALLEY, CA 94942-0599 | MARINAUDUBON.ORG

July 2, 2010

HAND DELIVERED

Bill Whitney  
Transportation Authority of Marin  
750 Lindero, Suite 200  
San Rafael, CA 94901

Re: CENTRAL MARIN FERRY CONNECTION MULTI-USE PATHWAY PHASE I  
INITIAL STUDY/NEGATIVE DECLARATION

Dear Mr. Whitney,

Thank you for the opportunity to submit comments on the Initial Study/Negative Declaration for the Central Marin Ferry Connection Multi-use Pathway Phase 1, and for providing a hard copy of these documents. We have reviewed the documents and find that the environmental document fails to meet minimal standards of adequacy. An Environmental Impact Report (EIR) should be prepared to ensure adequate analysis of the project impacts, and to address the entire project, both Phases I and II.

42

An EIR is needed to address the entire project, to adequately identify, discuss and evaluate the adverse impacts and measures to mitigate impacts of this 6.89 acre project, and to address project alternatives. This information is essential to ensure the potential environmental impacts are fully disclosed. As currently presented, most of the proposed mitigation measures are vague, unclear, and insufficient to ensure that compensation for project impacts will be adequate and, therefore, it cannot be claimed that project impacts would be reduced to a level of insignificance.

### Segmenting Project

43

The Initial Study improperly segments the environmental review for the Project. It thus violates CEQA by failing to analyze the whole of the project. CEQA defines a "project" as "the whole of an action, which has a potential for resulting in either a direct physical change" or "a reasonably foreseeable indirect change in the environment." CEQA Guidelines 15378(a). Moreover, CEQA requires that, "[w]here individual projects are, or a phased project is, to be undertaken and where the total undertaking comprises a project with significant environmental effect, the lead agency shall prepare a single program EIR for the ultimate project." CEQA Guidelines 15165; see also CEQA Guidelines 15168. Thus, CEQA requires that an agency take an expansive view of any particular project as it conducts the environmental review for that project. Here, by chopping the project into smaller segments and omitting any analysis of Phase II, the Initial Study minimizes the full range of environmental impacts from the entire project

44

This Phase I, would set the stage for Phase II, i.e. alignment would establish a direction for future alignment and limit consideration of possible alternatives that could provide a less environmentally damaging alternative for Phase 2. You have advised (personal communication) that this is not the case. Yet there is no assurance to that effect in the environmental document.

45

The Initial Study explains that the project is being considered in phases because the different phases have "independent utility." Independent utility is a concept that is applicable under the National Environmental Protection Act. The Initial Study reports that this is an environmental review under the

California Environmental Quality Act and it is being reviewed under Marin County EIR guidelines, therefore the NEPA standard would not apply. County policy, in addition, requires that an applicant submit plans for all of the applicant-owned property to avoid piecemealing and so that environmental analysis is comprehensive. However, this is exactly what is happening. The project is being separated into segments which prevents analysis of the full range of potential impacts of the entire project and could preclude consideration of less environmentally damaging alternatives. Even if the independent utility concept were applicable for non-federal projects, it has only been used for large highway projects. It has not been used for trails or path connectors such as this and, consequently, would not apply to this project.

#### Mitigation Requirements

Concerning legal requirements for mitigation, CEQA requires that "mitigation measures proposed in an EIR must be "fully enforceable" through permit conditions, agreements, or other legally binding instruments." CEQA 21081.6(b); CEQA Guidelines 15126.4(a)(3). Uncertain, vague, and speculative mitigation measures have been held inadequate because they lack a commitment to enforcement and do not ensure significant impacts will indeed be reduced to an insignificant level. See, e.g., *Anderson First Coalition v. City of Anderson* (2005) 130 Cal. App. 4th 1173, 1188-89. Here, the mitigation measures proposed in the Initial Study lack sufficient detail and specifics to determine whether they will reduce the admittedly significant biological impacts to an insignificant level. The Initial Study has no evidentiary basis to conclude that Project impacts would be less than significant. Moreover, it fails to even identify mitigation measures to mitigate many of the specific biological impacts it identifies.

46

A number of the measures proposed in the Initial Study and Neg Declaration defer analysis and mitigation itself. CEQA does not allow an EIR to defer analysis and mitigation to a future time. A project's impacts must be analyzed, disclosed, and mitigated at the "earliest feasible stage in the planning process." *Sundstrom v. Mendocino County* (1988) 202 Cal. App. 3d 296; see also CEQA Guidelines 15126.4(a)(1)(B). The environmental review cannot merely list possible measures that could mitigate the project's significant impacts and defer the identification of which measures to use until later in the process. *Communities for a Better Env't. v. City of Richmond*, 2010 WL 1645906 at \*14; *Gentry v. City of Murieta* (1995) 36 Cal. App. 4th 1359, 1396. Nor may an initial study rely on compliance with the recommendations of a report that has not yet been completed to mitigate significant impacts. *Id.* Here, the Initial Study provides lists of potential mitigation measures and best management practices without specifying which measures the Project will incorporate. It also defers both the analysis of impacts and the development of mitigation until some future time after the completion of future studies. This violates CEQA.

#### PROJECT DESCRIPTION

The Initial Study lists various components of the project including construction of new access ramps, multi-use pathways from Calpark Tunnel, sidewalks, retaining walls, and a U-shaped walkway etc. However, the project description does not provide sufficient information about most of these elements to enable the reviewer to evaluate their potential impacts. The following information is needed:

47

- Distance of the elevated structure from the marsh plain.
- Area of the marsh covered by the structure, not only support pilings but aerial coverage that will shade the marsh and, therefore, reduce vegetative habitat.
- Number of pilings or piers and where they would be located.
- A clear explanation of the purpose of this U-shaped structure. This structure would cause excessive and unnecessary impacts to the tidal marsh.
- A description and map showing the jurisdictional boundaries of Marin County and the City of Larkspur.

NEED FOR PROJECT/PROJECT PURPOSE

The Project Purpose discussion on page 5 states: "This proposed project would also improve access to the viewpoints for the public to view Corte Madera salt marsh area and San Francisco Bay by constructing an elevated path along the north bank of Corte madera Creek." The need for a viewpoint that extends over and would cause adverse impacts a tidal marsh is completely unjustified. There are numerous points where Corte Madera Creek can be viewed along the entire length of tidal influence.

48

The Initial Study does not mention the rationale that you provided to me at the recent Public Information meeting, namely that the U shaped structure over the marsh was needed to get the necessary height for a bridge to cross over the creek for the next phase. This would indeed be establishing a pattern that would set the stage for the Phase II alignment and design.

Phase I does not need the U shaped structure. It, or something similar, would only be needed for Phase II. This section of the pathway is the cause of most of the project's significant adverse impacts and should be dropped from the Phase I design.

1. LAND USE/PLANNING - POLICY COMPLIANCE

49

The Initial Study relies solely on mitigation measures for compliance with policies of the CWP. This approach is inconsistent with the CWP policies, which call for making every effort to avoid and reduce impacts before considering mitigation. In its impact discussions, the Initial Study, skips avoidance and minimization altogether, and goes immediately to mitigation. In addition, most of the proposed mitigations are vague and unclear, and fail to support a finding that the impacts would be reduced to a less than significant level. Further, the project does not comply with numerous CWP policies:

50

Goal BIO 1" ...maintain viable native plant and animal populations...."

BIO 1.1 "Protect sensitive biological resources, wetlands...through careful environmental review...."

The project would fill and cover viable and sensitive tidal marsh habitats and the cursory analysis gives no evidence that any effort was made to protect these habitat resources. The project does not comply with this policy.

51

BIO 1.3 "Protect large native trees, ....Prevent untimely removal of trees through implementation of standards in the Development Code and Native Tree Preservation and Protection Ordinance." The Initial Study does not evaluate the tree loss in terms of the required county ordinance and plan. Mitigation Measure (MM21) delays specific replacement to "permit review." The discussion contains several parameters, but no information is provided as to how the replacement ratios relate to trees that would be removed for the project. How many and what species of trees are 24 inches in diameter, 15-24 inches in diameter, and 50 inches in circumference? How many trees would have to be planted to comply with policies/ordinances? There is no evidence that the project has protected, or even tried to protect, large native trees, therefore, this mitigation is inconsistent.

52

BIO 1.6 "*Control the spread of Invasive Exotic Plants*" The mitigation proposed for this impact only relates to construction related impacts - educating construction workers. This mitigiaotn is insufficient and is not consistent. The discussion should address the ongoing potential for invasion of exotic species on the land and marsh that would be impacted by the project. In addition to pepperweed, broom and pampas grass other highly invasive species that could impacts the project are non-native spartina, radish, and detricchia. A management plan that will ensure ongoing identification and removal of invasive plants over a period of at least ten years should be prepared and implemented. The project does not comply with this policy.

- 53 Goal BIO 2: "Require identification of sensitive biological resources and commitment to adequate protection and mitigation...."  
 BIO 2.1 "Require environmental review...to assess impact of proposed development on native species and habitat diversity...sensitive natural communities, wetlands.....Require adequate mitigation measures for ensuring the protection to any sensitive resources and achieving 'no net loss' of sensitive habitat acreage, values and functions." The assessment is vague and inadequate.  
 It should begin with consideration of avoidance of impacts to wetland and woodland habitats. The current information does not "ensure" the protection of sensitive resources, because it is unclear where the wetland mitigation would take place, What kind of habitat would be created and whether it would be effective. The project does not comply with this policy.
- 54 BIO 2.2 "Development projects should preferably be modified to avoid impacts to sensitive resources, or to adequately mitigate by providing on-site...." The analysis shows absolutely no evidence that avoidance has been considered, that impacts would be kept to a minimum or that other provisions of this policy have been complied with. Therefore, the project would not be reduced to less than significant and is inconsistent with this policy.
- 55 BIO 2.3 "Condition or modify development permits to ensure that ecotones, or natural transitions between habitat types, are preserved and enhanced ...." The discussion claims that the project would "minimize impacts to the transition area...." The project would build a U-shaped pathway that would cause two intrusions into the already compromised transition zone for the existing tidal marsh. Clearly this is not minimizing impacts. The project is inconsistent with this policy.
- 56 BIO 2.4 "Ensure that important corridors for wildlife movement and dispersal are protected...."  
 The discussion recognizes the importance of Corte Madera Creek for endangered species and other species, and claims that mitigation 23 and 24 would mitigate the impacts to these resources.  
 Mitigation measure 23 deals only with construction activities, timing and surveys, and 24 deals with surveys. These measures, while important, do not ensure that movement corridors would be protected. The project would build a trail over and fill tidal marsh causing disruption of movement through dispersal habitats. The project is inconsistent with this policy.
- 57 BIO 2.5 Restrict disturbance. During nesting...." Timing for clapper rail work window in our experience is September 1 through January 31 - not February 28. The project is inconsistent with this policy.
- 58 Goal BIO-3 "Require all feasible measures to avoid and minimize potential adverse impacts on existing wetlands..."  
 BIO 3.1 - "Require development to avoid wetland areas so that existing wetlands and upland buffers are preserved...." The project is clearly not in compliance with these goal policy. The Initial Study analysis of consistency is based on claims that the wetland loss would be mitigated through a variety of options, however, avoidance is not one of them. Avoidance should be the first measure considered, followed by minimization. The project is inconsistent with this policy and the impact is not reduced to less than significant.
- 59 BIO 3.2 "Where avoidance is not possible, require provision of replacement habitat on-site at a ratio of 2:1...." For sites more than 2 acres in the Wetland Conservation Area (WCA) a minimum of 100 foot setback is required. "Regardless of parcel size, an additional buffer may be required based on results of a site assessment...."  
 Avoidance of the wetland impacts is possible by removing the U-shaped structure. The discussion does not address providing a buffer for existing wetlands, the intent of this policy, only mitigation for wetland

loss. The discussion should be expanded to address protection of a 100 foot buffer in compliance with this policy, and the need for an additional buffer considering the importance of the areas wetlands for endangered species. Clearly this impact is not reduced to less than significant.

BIO 3.2 Where avoidance of wetlands is not possible require provision of replacement on-site....”  
Avoidance the wetland impacts is possible by deleting the U-shaped structure from the project.

60 BIO 4.1 The discussion indicates that he project would occur within a Streamside Conservation Area (SCA). Similar to WCA’s, SCA policies require a 100-foot wide development setback from the top of the bank for parcels larger than 2-acres. The required buffer is not provided in compliance with this policy either.

61 BIO 4-18 *Promote the use of permeable surfaces* The discussion claims that non-permeable surfaces are required. The project is clearly not in compliance with this policy. It is not clear why using a permeable surface is not possible.

62 WR 1.4 “Protect Upland Vegetation. Limit development...on steep slopes in order to protect downslope areas from erosion.” There is no discussion of the slope of the hillside on which the portion of the path north of Sir Francis Drake Blvd. would be constructed or of measures that would be taken to avoid erosion.

63 OS 2.1 This policy calls out the Corte Madera Bayfront and states “Existing marshes should be preserved.” The project is inconsistent with this policy. Existing marshes would be covered and filled, not preserved. This impact is not reduced to less than significant.

64 TRL 2 “Design, build,...trails, as appropriate, in a manner compatible with natural resource protection.” The U-shaped section of this trail is not compatible with resource protection. It would require filling of tidal marsh and coverage of tidal marsh with an elevated structure that is not necessary for the purposes of this project.

### 3. GEOPHYSICAL

65 b) The proposed mitigation for addressing potential impacts associated with erosion of soils is evaluated as less than significant based on implementation of construction BMP’s. While there is a list of potential BMP’s there is no commitment to which ones would be used or to using any of them. The mitigation simply states that “Construction BMP’s may include....” (Emphasis added).

### 4. WATER

66 a) Changes in absorption rates.  
The discussion simply states that the “The proposed project would slightly increase impervious surface area due to creation of a new overcrossing and elevated path.” Describe what “slightly” means. The discussion also should address why pervious surfaces could not be used in some locations, such as the on-land portion.

67 c) Stormwater BMP’s  
As above, a list of BMP’s is included but there is no commitment to do any of them.

### 7. BIOLOGICAL RESOURCES

68 The project would take place in a sensitive habitats where there are potential impacts to six special status species, including three endangered, and many migratory species would be adversely affected.

There is an error in Appendix A, Natural Resources discussion 3.1.6.4 states that “surveys conducted in 2007 confirmed the presence of CCR in the preserve (Corte Madera Ecological Reserve), approximately 1,200 ft. south of the Study Area. The tidal marsh habitat is not considered to be breeding habitat, but may serve as a dispersal corridor (Flett 2009).” It is unclear whether the last statement is referring to the Phase I site or the Ecological Reserve marshes that could be impacted by Phase II. The Corte Madera Ecological Reserve has had a relatively stable breeding population of clapper rails for more than 20 years. It is considered by the USFWS to be a core population for the Central SF Bay. The Appendix should be changed to make clear that the statement about breeding does not apply to the marshes south of the creek.

69

#### WETLAND IMPACTS

The Negative Declaration States that the project area contains 1.70 acres of tidal wetlands and associated creek habitat. Permanent loss from permanent structures is identified as being .031 and temporary loss of .038 acres.

#### DIRECT IMPACTS

##### Impact/Mitigation Measure 2 Wetland Restoration

The project will also need water quality certification from the RWQCB.

The discussion of potential mitigations for tidal marsh impacts is inadequate. Avoidance of the impact should be considered first. There is no indication that avoidance was even considered. Avoidance of direct impacts to tidal marsh could easily occur by removing the U-shaped structure. This would avoid the need for pilings or piers and would avoid coverage of the existing marsh.

70

The discussion promises that impacts to tidal salt marsh would be mitigated through restoration or creation of wetland habitats. Even if it were demonstrated that tidal marsh impacts could not be avoided or minimized, there is no mention of where the mitigation would take place. For impacts that are unavoidable, mitigation should be of the same habitat type, be on-site or as close as possible to the site of loss, i.e. at or near the mouth of Corte Madera Creek for this project. The only site in this category would be the Madera Bay Park property that is in private ownership adjacent to the Ecological Reserve. We strongly oppose the use of a mitigation bank which would, in this case, be many miles from the project site. There is no mitigation bank closer than the Burdell Bank which is about 20 miles north, near Gness Field and would be of no value to species that use tidal marshes at the mouth of Corte Madera Creek.

#### INDIRECT IMPACTS

The only indirect impacts identified (page 62) are an increase in pedestrian and bicycle traffic in the salt marsh area and increased trash and debris. Even though these impacts are identified, no mitigation is proposed to reduce their significance. What measures would be required to reduce the impacts of the presence of increased numbers of people? Who would collect trash and debris left by the users? Trash would end up in the marshes and would need to be collected regularly to avoid significant impacts.

71

The proposed project design would also result in additional indirect impacts including shading that would inhibit pickleweed growth, noise, lighting, and increased sediment deposition due to the pilings which slow the water resulting in increased sediment deposition. Shading is mentioned but apparently dismissed and not discussed further. Additional information on the height off the marsh, is needed to evaluate the possible shading impacts.

The assessment of noise impacts only addresses noise impacts on people. Noise due to driving pilings, construction of the U-shaped trail and connector trail will impact endangered and other species that would

be using the marsh. In addition, ongoing noise impacts from people using the trail, particularly the U-shaped section that would be over the marsh, would cause adverse impacts on tidal marsh dependent species. Impacts of any lighting, that would be on the trails and/or lights from bicycles, on wildlife in the marsh should be addressed.

Structures such as pilings or piers placed in water, slow the flow of water causing sediments to drop out and deposit on the substrate or marsh plain. This potential impact should be addressed. How would it be anticipated sediment deposition would change and change the elevation of the adjacent marsh?

#### Mitigation Measure 6 Plant/Reseed Salt Marsh Habitat

This apparently is the mitigation for temporary impacts related to construction. Section 4.4.1.3 states that an additional 0.38 acres of tidal marsh habitat would be temporarily disturbed by the construction access. The area of salt marsh that would be disturbed with the project construction should be shown and/or described.

The discussion also speaks to hydroseeding with salt marsh plants. What marsh plants would be hydroseeded? The most important aspect in restoring tidal marsh, provided there are marsh plants in the vicinity for a seed source, is the elevation of the substrate. What is the elevation of the existing marsh plain and what is the elevation at which the area used for construction would be left?

#### Mitigation Measure 9 USFWS Approved Biologist

This requires TAM to consult with the USFWS and designate an approved biologist that would be on-call during construction activities. Explain what "on-call" means? Wouldn't they have to be close enough to advise on what to do if endanger species are found? Shouldn't they be on-site during construction?

#### Mitigation Measure 11 - Construction Timing

From our experience, the construction window for clapper rails is Sept ember 1 through January 31 - not February 28. What would necessitate construction occurring between February 1 and August 31?

#### Measure 14 Exclusionary Fence for Harvest Mouse.

How would it be assured that harvest mice are not kept on the site by construction of this fencing? Wouldn't it be better to not block their exit?

#### Mitigation Measure 16 Dewatering

This potential impact can and should be avoided by removal of the U shaped structure.

#### Mitigation Measure 19 Work in Live Stream

Is CM Creek considered a live stream?

#### VEGETATION REMOVAL - UPLAND

The project would remove up to 47 or, as stated at 4.4.3.3 Biological Resources Appendix, 48 trees. The Natural Resources Study Report (section S.2.4) reports that 16 Coast Live Oak trees would be removed and refers the reader to Appendix B, which is not included in the Natural Resource Appendix. Nor could we find an adequate description of the mitigation for tree removal. The Appendix states that the trees would be replanted as described in Mitigation 1, but that simply states that replacement would "occur at a ratio to be determined through coordination with the City of Larkspur."

The environmental document should include a list of the trees to be removed, their size species and a map

showing their location. A plan for the path superimposed on an aerial photo is also needed. As with salt marsh impacts, the preferred mitigation is avoidance of the impact. The environmental document should explain why the path alignment could not be moved so that native tree loss could be avoided or significantly reduced.

The impacts of removing up to 48 trees 16 oaks, should be analyzed in the light of the extensive loss of native oak trees to the pathogen phytophthora, as part of the discussion of this impact. This existing condition makes it even more imperative that every effort be made to save native oaks.

#### Mitigation Measure 21 Comply with Tree Removal Ordinance

79 Provides no information about the species of trees to be planted as mitigation or the location at which they would be planted. This information is needed to evaluate the adequacy of the proposed mitigation, whether it would provide the same habitat functions and provide habitat for the wildlife that use the existing trees. Also, why is Larkspur's tree removal ordinance standard of 50" circumference used but the replacement determined according to the CWP Policies BIO 1.1, 1.3 as referenced? What is the size requirement in the county ordinance?

States that specific requirements would be determined during permit review process. This means that the mitigation requirements are not defined and, therefore, they cannot be relied upon to reduce the level to less than significant.

#### Measure 5 Replant /Re-seed to Stabilize Disturbed Areas

80 Slopes affected by the project should be replanted with native grasses and shrubs. The discussion should identify which species are being considered or used.

#### Measure 22 Noxious Weeds

81 The Bay Area is heavily invaded by numerous species of noxious plants. The only proposed mitigation is educating construction workers and cleaning construction equipment. To avoid, to the extent possible, invasion with noxious weeds, denuded uplands should be hydroseeded with native seed mix appropriate to the area. As discussed above, a management plan should be prepared that will ensure any noxious species that come in after existing plants have been removed, are removed and that the areas are revegetated. Removal and revegetation activities should extend for at least 10 years after construction is completed.

#### IMPACTS NOT ADDRESSED - SEA LEVEL RISE

82 The project should be evaluated in the light of the anticipated rise in sea level. Has sea level rise been considered in determining the elevation and location of the pathway? What is the elevation of the pathway? What is the projected sea level rise in the project area according to BCDC's reports?

#### ALTERNATIVE ANALYSIS

As noted above, Phases I and II should be evaluated together in an EIR. We recommend that the following alternatives be considered:

- 83
- 1) The U shaped structure should be eliminated. There are many locations where CM Creek can be viewed. There is no need to fill and cover tidal marsh for this structure.
  - 2) Use of the existing path over the creek.
  - 3) If additional height is necessary for extending over the Creek, then a design using a spiral structure, such as was submitted by Friends of Corte Madera Creek Watershed, should be used because it could be located on land and would not require filling of wetlands.

MANDATORY FINDINGS OF SIGNIFICANCE

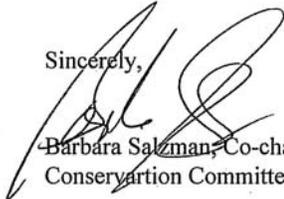
This project cannot be approved with the proposed Initial Study and Negative Declaration. A "yes" response is necessary for all the Mandatory Findings of Significance:

- a) The project has the potential to degrade the quality of the environment, to reduce or restrict the range of an endangered animals. Mitigation measures do not reduce this impact to less than significant.
- b) The project has the potential to achieve short-term goals to the disadvantage of long term environmental goals. The statement that any potential environmental impacts from the proposed project would be mitigated to less than significant is a fallacy. As described in this letter, most of the proposed mitigation are clearly insufficient to compensate for the project impacts and/or they are vague, unclear or so poorly described that they the reader cannot evaluate their adequacy.
- c) When viewed together with the already substantial losses of tidal marsh and with the effects of probable future projects, specifically, the Phase II of this Ferry Connection Multi-Use Pathway, there is no question that the effects of the project would be cumulatively considerable.
- d) The project could have a substantial adverse effect on human beings that would use the path. Potential impacts of sea level rise on the path have not been addressed.

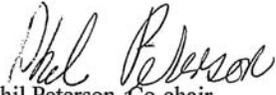
The project cannot be approved with a Mitigated Negative Declaration, because, as described in this letter, the project would have significant impacts and these are not reduced to a less than significant level by the proposed mitigation measures. An EIR is required to adequately address the complete project and its potential impacts.

We appreciate you consideration of our comments. Please let us know if you have any questions.

Sincerely,



Barbara Salzman, Co-chair  
Conservation Committee



Phil Peterson, Co-chair  
Conservation Committee

### **Response to Comment 42**

Refer to Response to Comments 13 and 16 regarding mitigation sufficiency.

### **Response to Comment 43**

Refer to Response to Comment 8 regarding “reasonably foreseeable.”

### **Response to Comment 44**

Refer to Response to Comment 7 regarding a Phase II alignment. The IS/MND is clear regarding Phase II. No change is required.

### **Response to Comment 45**

Refer to Response to Comments 6 exclusion of Phase II from the environmental analysis

### **Response to Comment 46**

Refer to Response to Comments 11 regarding indirect impacts and 16 regarding mitigation sufficiency.

### **Response to Comment 47**

- *Distance of the elevated structure from the marsh plain.*  
The current design includes an elevation range of 7–17 feet from the existing ground to the pathway.
- *Area of the marsh covered by the structure, not only support pilings but aerial coverage that will shade the marsh and, therefore, reduce vegetative habitat.*  
A preliminary estimate of the pathway over the marsh is approximately 0.1 acre.

Refer to Response to Comments 11 regarding indirect impacts.

- *Number of pilings or piers and where they would be located.*  
Refer to page 35 of the Natural Resource Study in Appendix A.
- *A clear explanation of the purpose of this U-shaped structure.*  
Refer to Response to Comment 17 regarding the justification for the current design.
- *A description and map showing the jurisdictional boundaries of Marin County and the City of Larkspur.*  
Jurisdictional boundaries were not included because the proposed Phase I project is located entirely within the City of Larkspur and Marin County, as described in the project description.

### **Response to Comment 48**

Refer to Response to Comment 9 regarding viewing areas.

Refer to Response to Comment 17 regarding the justification for the current design.

### **Response to Comment 49**

The description of the mitigation measures presented in the Initial Study reflects the end result of avoiding, minimizing, and mitigating impacts to the environment. Although a discussion of avoidance and minimization measures was not included, they have been implemented in the preliminary design where feasible, and only when avoidance and minimization was not feasible were mitigation measures included to reduce the impacts below a significant level. For example, initial designs evaluated structures that avoided the marsh area entirely, when it was determined that design would not meet the goals of safety and ADA compliance, other designs were considered. One such design included extending the pathway farther out into Corte Madera Creek. After consideration of many factors, including impacts to the wetland area, the pathway was shortened to reduce encroachment into the creek and the impacts associated with it. Due to the need to extend the pathway into the wetland area, mitigation measures were developed to reduce the impacts of the pathway on the environment.

Refer to Response to Comment 10 for additional alternatives evaluated.

TAM contends that implementation of the proposed mitigation measures would reduce the impacts to a less than significant level. Additionally, implementation of the mitigation measures would comply with the Marin Countywide Plan policies.

### **Response to Comment 50**

Refer to Response to Comment 49 regarding avoidance and minimization efforts during the design process. TAM contends that the project is in compliance with this Marin Countywide Plan policy.

### **Response to Comment 51**

Refer to Appendix D in the Visual Impact Assessment Report (pages D-1, 2) for location and types of trees anticipated to be impacted by the project. Refer to Response to Comment 49 regarding avoidance and minimization efforts during the design process. TAM contends that the project is in compliance with this Marin Countywide Plan policy.

### **Response to Comment 52**

This policy prohibits the use of invasive species in required landscaping, which would not occur as part of this project. Mitigation Measures 5 and 6 explicitly include the use of native grasses and shrubs including native marsh species. Additionally, Mitigation Measure 22 includes the

cleaning of construction vehicles to reduce the spread of invasive species. TAM contends that the project is in compliance with this Marin Countywide Plan policy.

TAM contends that Mitigation Measure 22 (Noxious Weeds) sufficiently addresses the issues concerning invasive species. Removal of invasive species after construction has been completed may occur as part of the general maintenance of the area, but is not included as part of this project. However, a 10 year invasive species management plan will not be incorporated as part of this project.

### **Response to Comment 53**

Refer to Response to Comment 16 regarding mitigation sufficiency. TAM contends that the project is in compliance with this Marin Countywide Plan policy.

### **Response to Comment 54**

Refer to Response to Comment 49 regarding avoidance and minimization efforts during the design process. TAM contends that the project is in compliance with this Marin Countywide Plan policy.

### **Response to Comment 55**

Refer to Response to Comment 49 regarding avoidance and minimization efforts during the design process. TAM contends that the project is in compliance with this Marin Countywide Plan policy.

### **Response to Comment 56**

Mitigation Measures 23, 24 (and 25) are included to reduce potential impacts to migratory birds protected under the Migratory Bird Treaty Act, which may use the study area as a movement corridor. TAM contends that the project is in compliance with this Marin Countywide Plan policy.

Refer to Response to Comment 16 regarding mitigation sufficiency.

### **Response to Comment 57**

The permitted work period will be modified to occur from September 1 to January 31. This change has been reflected in the IS/MND. If construction must occur during the period from February 1 to August 31, a qualified wildlife biologist shall conduct preconstruction surveys for nesting birds. TAM contends that the project is in compliance with this Marin Countywide Plan policy.

### **Response to Comment 58**

Refer to Response to Comment 49 regarding avoidance and minimization efforts during the design process. TAM contends that the project is in compliance with this Marin Countywide Plan policy.

Refer to Response to Comment 16 regarding mitigation sufficiency.

### **Response to Comment 59**

As site assessment (i.e., wetland delineation) has been prepared as part of this project. As previously described, impacts to the wetlands would be offset through the implementation of mitigation measures (refer to Response to Comment 47). Additionally, TAM contends that this project would qualify as an exception to this policy because the parcel is already developed with an existing use and no unauthorized fill or other modifications to wetlands have occurred as part of ongoing use of the property. The wetland area is located in an urbanized area that has undergone extensive development with the incorporation of residential and commercial properties, as well as the development of transportation facilities within the wetland areas. The proposed project would result in a construction of a project that is consistent in use with the other existing structures (i.e., existing railroad corridor and multi-use pathway) in the wetlands. TAM contends that the project is in compliance with this Marin Countywide Plan policy.

### **Response to Comment 60**

As described by the Marin Community Development Agency (<http://www.co.marin.ca.us/depts/CD/main/comdev/ADVANCE/CWP/EQ.CFM>), “A Stream Conservation Area consists of a watercourse, surrounding banks, and a strip of land extending laterally from the top of both banks. Uses allowable in the Stream Conservation Area include: necessary water supply and flood control projects, improvements to fish and wildlife habitat, grazing, agriculture, maintenance of channels for erosion control, water monitoring installations, and trails.”

The proposed project would construct a multi-use pathway that would be considered part of the trails system in Marin County. Therefore, this project constitutes an allowable use within a Stream Conservation Area. TAM contends that the project is in compliance with this Marin Countywide Plan policy.

### **Response to Comment 61**

The impact of new impervious areas from the proposed project were studied in the Water Quality Report and included in the Appendix of the IS/MND. To offset the impacts from the added impervious area, biosales are proposed on the north side of East Sir Francis Drake Blvd. to the east of the existing railroad embankment and on the south side of East Sir Francis Drake Blvd. in the upland area south of the existing multi-use pathway. These bioswales would be used to filter out sediments of storm water prior to entering the wetlands. The use of impervious surfaces will be used for the proposed pathway to allow for ease of maintenance and consistency

with the Cal Park Hill Tunnel Rehabilitation Project. TAM contends that the project is in compliance with this Marin Countywide Plan policy.

### **Response to Comment 62**

Mitigation Measure 5 (Replant/Re-seed to Stabilize Disturbed Area) has been included to reduce erosion in the upland areas. Additionally, retaining walls will be included as part of the proposed project which would reduce the impacts from erosion in the upland areas where they would be located. TAM contends that the project is in compliance with this Marin Countywide Plan policy.

### **Response to Comment 63**

The comment refers to Section OS 2.3 in the Marin Countywide Plan. The purpose of this policy is to balance shoreline protection and access to water edge lowlands, which this project would accomplish. Through the consideration of usage and environmental factors, TAM contends that the current design strikes a balance between minimizing impacts to the shoreline, while providing access to the water edge lowlands. TAM contends that the project is in compliance with this Marin Countywide Plan policy.

### **Response to Comment 64**

Refer to Response to Comment 17 regarding the justification for the current design. TAM contends that the project is in compliance with this Marin Countywide Plan policy.

### **Response to Comment 65**

The intent of including a potential list of construction best management practices (BMPs) to minimize the impacts of erosion is to provide options during construction. These BMPs are not considered mitigation, but are commonly used construction practices to minimize erosion. The contractor would be required to implement erosion control measures as described in Mitigation Measure 4 (Implementation of Erosion Control Measures and Storm Water Pollution Prevention Plans), which may include the items included in the list of BMPs. Although, the contractor is not required to implement these BMPs, the contractor is required implement erosion control, which may or may not include these suggested BMPs. BMPs will be included as part of the design specifications.

### **Response to Comment 66**

The term “slightly” is intended to describe a relatively small impact. The use of impervious surfaces will be used for the proposed pathway to allow for ease of maintenance, which is consistent with the Cal Park Hill Tunnel Rehabilitation Project. The impact of new impervious areas from the proposed project were studied in the Water Quality Report and included in the Appendix of the IS/MND. To offset the impacts from the added impervious area, biowalls are proposed on the north side of East Sir Francis Drake Blvd. to the east of the existing railroad embankment and on the south side of East Sir Francis Drake Blvd. in the upland area south of

the existing multi-use pathway. These bioswales would be used to filter out sediments of storm water prior to entering the wetlands.

### **Response to Comment 67**

Refer to Response to Comment 65 regarding BMPs.

### **Response to Comment 68**

The text, “the tidal marsh habitat is not considered to be breeding habitat, but may serve as a dispersal corridor” is referring to the marsh area within the Phase I study area, not the Corte Madera Ecological Preserve.

### **Response to Comment 69**

There are two mitigation measures that address impacts to the wetland habitat; Mitigation Measure 2 (Wetland Habitat Restoration), and Mitigation Measure 6 (Replant/Re-seed Salt Marsh Habitat). Mitigation Measure 6 is intended to offset the impacts associated with the temporary construction access and construction of the multi-use pathway. Mitigation Measure 2 is intended to offset the impacts associated with the permanent structures placed within the tidal salt marsh. It states that “the portion of tidal salt marsh subject to mitigation through the creation or restoration of wetland habitat would include only the area of permanent impact associated with the multi-use pathway (i.e., columns, footings, and piers placed within the tidal salt marsh) (0.03 acre [0.01 hectare]).” It is important to note that the proposed wetland mitigation of 0.03 acre is for USACOE permitting, which only includes the area associated with permanently placed fill within waters of the US (i.e., wetlands). This portion of the proposed mitigation would not include the impacts associated with temporary impacts because the USACOE only requires mitigation for permanent loss to waters of the U.S. However, Mitigation Measure 6 would offset the impacts to the salt marsh associated with the temporary impacts through revegetation. Additionally, mitigation for sensitive species habitat (i.e., California clapper rail, California black rail, and salt marsh harvest mouse), would be done separately and through consultation with USFWS and CDFG and would consider both direct and indirect impacts, which includes shading. Thus, “coordination with USACOE, USFWS, and CDFG to establish mitigation measures to offset impacts to the tidal salt marsh in accordance with Section 404 of the Clean Water Act, Federal Endangered Species Act, and California Endangered Species Act” would ensure that the restoration/creation of wetlands at an appropriate level to offset all impacts to the wetland area, including. Furthermore, TAM will work with the federal and state regulatory agencies to implement the required mitigation measures that could focus on further reducing indirect impacts.

### **Response to Comment 70**

The IS/MND (page 15) specifically indicates that a Regional Water Quality Control Board Permit would be required as part of this project.

Refer to Response to Comment 49 regarding avoidance and minimization efforts during the design process.

Refer to Response to Comment 16 regarding mitigation sufficiency.

### **Response to Comment 71**

Refer to Response to Comment 11 regarding indirect impacts to the wetland area.

Although noise and light related impacts are anticipated to increase, the impact on biological resources is not anticipated to be significant. The proposed project is consistent with existing land uses in the project area, which include pedestrian and bicyclist usage on the existing multi-use pathway over a portion of the marsh area. Likewise, nighttime lighting from the adjacent properties, including East Sir Francis Drake Blvd. represents a baseline condition and the operation of the proposed pathway is not anticipated to result in a significant impact from the additional lighting.

Construction related noise are unavoidable, but will be minimized through adherence to City of Larkspur noise standards as well as through Mitigation Measure 28 (Construction Noise Control Measures). Additionally, the implementation of Mitigation Measure 11 (Special Status-species Construction Avoidance Timeline) would minimize impacts to special-status species.

The Location Hydraulic Study (Appendix G) indicated that “the proposed pathway would have no significant effect on the water surface elevation and flow velocities.”

### **Response to Comment 72**

The wetland area that would be disturbed is shown in Figure 4-1 of the Natural Resource Study (page 35).

Hydroseeding using native species was included to provide the option to the contractor if it would be appropriate for reseeding the area. The post-construction ground elevation would be restored to pre-construction conditions to the maximum extent possible.

### **Response to Comment 73**

The term “on-call” refers to ensuring that biologist has been designated for the project and is available to consult with during the project when needed. It is not known at this time if USFWS will require a biologist to be present on site throughout construction. This will be determined during consultation with USFWS.

### **Response to Comment 74**

Refer to Response to Comment 57 regarding timing of California Clapper Rail breeding season avoidance.

### **Response to Comment 75**

This mitigation measure may be omitted, but would be done only after consultation with USFWS.

### **Response to Comment 76**

Refer to Response to Comment 10 regarding the justification for the current design.

### **Response to Comment 77**

The term “live stream” is used to indicate a perennial, actively flowing stream.

### **Response to Comment 78**

Refer to Response to Comment 12 regarding tree impacts and mitigation.

Refer to Response to Comment 10 regarding the justification for the current design.

Refer to Response to Comment 18 regarding Sudden Oak Death Syndrome.

### **Response to Comment 79**

Refer to Response to Comments 12 regarding tree impacts and mitigation.

Marin County’s tree ordinance only applies to non-agricultural, unincorporated areas of the county. Therefore, the City of Larkspur’s Heritage Tree Ordinance will be used to determine replacement mitigation. As described in mitigation measure 21 (Comply with Local Tree Removal Ordinances), “replacement of trees shall occur at a 2:1 ratio for heritage trees 15–24 inches in diameter and 4:1 ratio for trees greater than 24 inches in diameter” per the City’s requirement. Tree replacement will consider on-site replanting first, and then off-site, if on-site isn’t feasible. This is acceptable mitigation when avoidance of tree removal isn’t feasible. TAM contends that the mitigation requirements are defined and that adherence to the mitigation measures will be required as part of the project, which will reduce the impacts below a significant level.

### **Response to Comment 80**

The species used to replant disturbed areas will be determined later in the design process; however, the mix will be limited to native species.

### **Response to Comment 81**

TAM contends that Mitigation Measure 22 (Noxious Weeds) sufficiently addresses the issues concerning invasive species. Removal of invasive species after construction has been completed may occur as part of the general maintenance of the area, but is not included as part of this project.

### **Response to Comment 82**

Sea level rise was considered during the initial design phase and those considerations have been incorporated into the current design. Refer to the Location Hydraulic Study in Appendix G for details related to sea level rise.

### **Response to Comment 83**

Refer to Response to Comment 10 for additional alternatives evaluated.

TAM contends the selected alternative meets the goals of the proposed project while minimizing impacts to the surrounding environment.

### **Response to Comment 84**

- (a, b): Refer to Response to Comments 13 and 16 regarding mitigation sufficiency
- (c): Refer to Response to Comments 6, 7, and 8 regarding justification for excluding Phase II from environmental evaluation.
- (d): Refer to Response to Comment 81 regarding sea level rise.

TAM contends, for the reasons previously stated, that the environmental document is complete and that full disclosure of the potential impacts associated with the proposed project have been achieved in the IS/MND and that a focused EIR is not required.

**From:** Stites, Moses [mailto:moses.stites@cpuc.ca.gov]  
**Sent:** Friday, July 02, 2010 10:58 AM  
**To:** Bill Whitney  
**Subject:** RE: Central Marin Ferry Connection Multi-Use Pathway Phase 1

Bill,

Thanks for the confirmation of your email address. I will forward the letter either today or Tuesday regarding the CPUC General Order (GO) 88-B reference to any work on or near a railroad track or at-grade rail crossing.

Thank you.

Moses

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**PUBLIC UTILITIES COMMISSION**505 VAN NESS AVENUE  
SAN FRANCISCO, CA 94102-3298

July 6, 2010

Bill Whitney  
Transportation Authority of Marin  
750 Lindero St. Suite 200  
San Raphael, CA 94901Re: Notice of Completion-Mitigated Negative Declaration  
Central Marin Ferry Connection Multi-use Pathway Phase 1 Project  
SCH# 2010062009

Dear Mr. Whitney:

As the state agency responsible for rail safety within California, the California Public Utilities Commission (CPUC or Commission) recommends that development projects proposed near rail corridors be planned with the safety of these corridors in mind. New developments and improvements to existing facilities may increase vehicular traffic volumes, not only on streets and at intersections, but also at at-grade highway-rail crossings. In addition, projects may increase pedestrian movement at crossings, and elsewhere along rail corridor rights-of-way. Working with CPUC staff early in project planning will help project proponents, agency staff, and other reviewers to identify potential project impacts and appropriate mitigation measures, and thereby improve the safety of motorists, pedestrians, rail personnel, and rail passengers.

85 | Commission approval is required to modify an existing highway rail crossing or to construct a new crossing. General Order (GO) 88-B Rules for Altering Public Highway-Rail-Crossings will be required along with supporting CEQA documentation by the Commission for any proposed modifications to the existing railroad tracks or trestle by the Transportation Authority of Marin.

Thank you for your consideration of these comments. If you have any questions in this matter, please call David Stewart, Utilities Engineer, CPUC Rail Crossings Engineering Section, at (916) 928-2515 or email at [ATM@cpuc.ca.gov](mailto:ATM@cpuc.ca.gov).

Sincerely,

Moses Stites  
Rail Corridor Safety Specialist  
Consumer Protection and Safety Division  
Rail Transit and Crossings Branch  
180 Promenade Circle, Suite 115  
Sacramento, CA 95834-2936

### **Response to Comment 85**

SMART's proposed active rail line ends just north of East Sir Francis Drake Blvd. The trestle at East Sir Francis Drake Blvd. was removed in 2001 leaving about 400' +/- of inactive trestle and rail line south of East Sir Francis Drake Blvd. and north of Corte Madera Creek and is no longer able to carry rail traffic in its current condition. The proposed project would remove a portion of the inactive trestle where the path and rail line intersect.

Although there are no plans or funding for extending the rail line over East Sir Francis Drake Blvd. and Corte Madera Creek, TAM has been working closely with SMART so that the pathway would not preclude any future plans for a southern expansion of the rail line. Preliminary engineering has concluded that a future rail extension to the south would require a higher rail alignment and that any future rail crossing of the pathway would be a grade separated crossing with the SMART extension occurring above the pathway.

Jacobs Engineering, a consultant to TAM, has since been in contact with Mr. David Stewart, Utilities Engineer with the CPUC and has confirmed that a General Order 88-B is not required of the pathway crossing since the rail line is not active and that future projects would be grade separated.

## Transportation Solutions Defense and Education Fund

P.O. Box 151439 San Rafael, CA 94915 415-331-1982

"Solutions Is Our Middle Name"

July 2, 2010  
By E-Mail

Bill Whitney  
Transportation Authority of Marin  
750 Lindero Street, Suite 200  
San Rafael CA 94901

Re: Central Marin Ferry Connection--Initial Study/Mitigated Negative Declaration

Dear Mr. Whitney:

The Transportation Solutions Defense and Education Fund, TRANSDEF, has long been acquainted with the railroad trestle over Sir Francis Drake Boulevard in Larkspur, and worked intensively to preserve it from depredation at the hand of government agencies. It is with that history that we offer the following comments on the proposed Mitigated Negative Declaration and associated Initial Study.

### Historical Resources

We strongly disagree with the conclusions of the Initial Study and its underlying Historical Resources Evaluation Report as to V(1)(b), finding consistency with Policy HAR 1.1 of the Countywide Plan, and V(14)(a), finding a less-than-significant impact on historic structures. After explaining our objections to these conclusions, we will suggest appropriate mitigations.

86

Having been at the center of the battles against agencies seeking to remove the trestle over SFDB, (the loss of which led to the need for the proposed project) , it is clear that two of the National Register evaluations (Caltrans, 1988 and Carey, 2003) were focused on the trestle over SFDB. Because we already know that this section of trestle was first rebuilt and then later removed, its integrity is not at issue here. Similarly, JRP, 2003, dealt with a different segment, one in which a trestle structure played only a minor role. That trestle's visual qualities were not evocative of an historic past, in part because the structure is small in scope.

87

On the other hand, the segment remaining between SFDB and Corte Madera Creek, along with the bascule bridge and the trestle to the south, has substantial scope. It is a very visible piece of Marin's history, conveniently located near one of the most travelled intersections in the county. As such, it is unusually accessible to the public. It is intact as

it is, and serves as an exemplar of how railroading was previously done. It needs to be evaluated separately from the three studies cited above.

Garcia, 2003, speaks to the historical value of the trestles and how one segment of the railroad was eligible for NRHP. However, because the Project Sponsor did not have the source materials for the Historical Resources Evaluation Report available in their offices, we are unable to provide further citations in support of our position. Suffice it to say that even in summary, it is clear that Garcia provides a supportive point of view towards SMART's trestles in general, contradicting the following assertions:

88 | The Historical Resources Evaluation Report asserts without substantial evidence that the railroad "nor once built, did it appear to have any immediate and/or substantial effects to the surrounding area, either at the local, state or national level." (p. 18). We strongly disagree. It is well known in transportation circles that a mode of transportation provides a characteristic shape to development. Peter Calthorpe, urban and regional planner, frequently speaks about "the string of pearls" laid out along the rail line in Marin and Sonoma Counties. See, for example, Sonoma / Marin Multimodal Transportation and Land Use Study, 1997. The pearls are the areas from which it is possible to walk to the rail stations. The later development of the automobile eliminated this clustering effect, resulting in sprawl. Marin County, like San Mateo County, was shaped by the railroad. This is why the existing trestle qualifies under Criteria 1 and 3 for preservation.

89 | We also take exception to the assertion that "the construction of modern-day US 101 immediately west of the railroad and modern offices buildings to the east, have substantially compromised this segment's integrity of setting, feeling, association, materials, craftsmanship and design" (p. 18). This glaring overstatement raises questions about the experience or objectivity of the HREER author. Clearly, the materials, craftsmanship and design have not changed (other than through minor repair, which is common for an industrial historic resource.) While the setting is far less pastoral than in the past, the existing structure still provides a feelingful connection to the past--a rare one, now that almost all traces of our railroad past have been obliterated. What purpose would be served, destroying the last significantly sized reminder of our railroad past? How are we to recognize our heritage if the signs of it are removed?

90 | The Historical Resources Evaluation Report fails to meet a number of standards for compliance with Section 106 of the National Historic Preservation Act. First, there is no evidence that TAM or the authors of the HREER complied in any meaningful way with CFR 800.3(e), implementing regulations for Section 106. These require public involvement. The public meetings held by TAM do not substitute for consultation with TRANSDEF, Larkspur Heritage, the Marin County Historical Society, the Northwestern Pacific Railroad Historical Society or any other interested parties. The Section 106 process is thus glaringly incomplete.

91 | The report most egregiously fails to recognize the transformative influence of the NWP on the urbanization of Marin County. The development of of communities in

Tamapalpais Valley and Almonte, and Mill Valley south of Larkspur and countless communities north were specifically linked to the alignment of the NWP and the location of stations. Southern Marin was essentially rural until the NWP. The lowlands were marshy and the hillsides were utilized by dozens of dairy ranches. The NWP clearly "opened up areas of social, economic and commercial development." The author clearly knows very little about the history of Marin County. Hence the historic context of the HRER is shockingly inadequate and the argument against significance under Criterion 1 (or A) is deeply flawed.

We thus disagree with the analytic method of the Historical Resources Evaluation Report because if followed to its logical conclusion, the only historical resources that would be left standing would be those that were truly exceptional. There would be little left to educate us about our past.

We disagree that "the segment does not appear to be significant, as it was not the first rail line in the county nor was it built for any reason other than to provide improved transportation for freight and passengers." (p. 20). Of course that is why it was built. All railroads were built for that reason. That doesn't diminish its historical or educational value.

92

We also disagree with "Similarly, trestle is one of many constructed during the twentieth century along this line utilizing standard plans, therefore it does not appear to meet Criterion 3." (p. 21). What the analysis misses is that preserving a scarce remnant of the historic period is worthwhile (especially when located in such a visible location), as compared to bulldozing it all. The dismissive remarks about the bascule bridge and trestle demonstrates the author's failure to provide context providing information on the status of other engineering features associated with the line. It would appear that the analysis is an exercise in fulfilling the Project Sponsor's desire to have free rein with the historic structure.

93

Ultimately, the Historical Resources Evaluation Report fails to provide substantial evidence to support its position on the points we raise above. We request that Tables 4, 5, 6 and 7 be revised to indicate that the Northwestern Pacific Railroad, trestle and bascule bridge over Corte Madera Creek are determined eligible for the NRHP and that they are historic resources for purposes of CEQA. We further request that the Draft Initial Study be revised to indicate inconsistency with Policy HAR 1.1 of the Countywide Plan for item V(1)(b) unless mitigated, and for V(14)(a), that the project's impact on historic structures is Potentially Significant Unless Mitigated.

94

#### Mitigations

We suggest the following feasible mitigation for the significant impacts to historical resources:

Delete the sentence "Remove or retrofit all or a portion of the existing railroad trestle" from the Project Description on page 6, as well as anywhere else it occurs in the environmental document. Replace it with "If the safety of the Project's users requires the removal of any portion of the existing railroad trestle, all interested parties shall be

invited to a design workshop to develop and analyze alternatives, with the goal of minimizing the amount of trestle to be removed. Only the minimum amount necessary to preserve safety shall be removed. Trestle members shall be unbolted rather than cut, and shall be stored in case an opportunity to reassemble the trestle arises. If piles are to be removed, they shall be pulled out of the ground rather than cut.

Other Comments on Initial Study

95 | p. 14: The text refers to “the abandoned Northwestern Pacific Railroad line.” The term “abandoned” is a term of art in railroad law, and should not be used without certainty as to the legal status. A line can be abandoned only through a formal proceeding at the federal Surface Transportation Board, or its predecessor, the Interstate Commerce Commission. If one cannot cite the date of abandonment, a line should instead be termed “out of service.” The term is also misused on page 17 and elsewhere in the Historical Resources Evaluation Report.

96 | p. 54: The analysis of GHGs omits a discussion of emissions resulting from the use of substantial amounts of concrete. These emissions could be avoided by employing a used steel bridge instead of a new concrete bridge.

97 | p. 16 of Historical Resources Evaluation Report: Carey, 2003 was fifteen years, not five years after Caltrans, 1988.

Comments on the Development of Phase 2

98 | We urge the design team to attempt to purchase the rights of the marina near the project site to dock ships too tall to clear the Highway 101 bridge over Corte Madera Creek. Perhaps a site for a dock could be found on the eastern side of the trestle.

We appreciate this opportunity to comment on the Draft Initial Study and Mitigated Negative Declaration.

Sincerely,

/s/ DAVID SCHONBRUNN

David Schonbrunn,  
President

### **Response to Comment 86**

To be eligible for the California Register of Historical Resources (and National Register of Historic Places) a resource must retain integrity to the potential period of significance (see Paragraph 2 on Page 17 of the Historic Resources Evaluation Report [HRER]). Therefore, the integrity of the segment of the Northwestern Pacific Railroad (NWP) evaluated for the HRER, and the trestle and bridge, is key issue in the evaluation of both resources. Please refer to Paragraph 2, Page 18 or the HRER for a discussion of the integrity of the both the rail segment and trestle and bridge.

### **Response to Comment 87**

The bridge and northern and southern trestles together provided the means to cross Corte Madera Creek; therefore these elements should be evaluated as a single structure or component of the railroad.

### **Response to Comment 88**

The quoted text discussed in the letter from the HRER is incomplete. The complete text reads: “Even if the segment appeared to retain sufficient integrity, it would not appear to be eligible under Criterion 1-4. Under Criterion 1 (NRHP Criterion A) NWP overall does not appear to have opened up new areas for social, economic, commercial, or industrial development, nor once built, did it appear to have any immediate and/or substantial effects to the surrounding area, either at the local, state or national level.” The text following this statement on pages 18-20 supports the conclusion of not eligible under Criterion 1 only for this segment of the NWP. For a discussion of eligibility under Criterion 3, see Paragraph 2 on Page 20. To be eligible for the California Register of Historical Resources (and National Register of Historic Places), a resource must have both significance and retain integrity to the period of significance. As outlined in the HRER (Paragraph 2, Page 18) the subject segment of the railroad, as well as the trestle and bridge, lack sufficient integrity to the potential periods of significance to warrant listing in the California Register of Historical Resources or National Register of Historic Places.

### **Response to Comment 89**

The quoted text discussed in the letter from the HRER is incomplete. When read in its entirety (see Paragraph 2, Page 18 of the HRER), the paragraph’s intent notes the loss of integrity of materials, craftsmanship and design is attributed to the removal of tracks along the subject rail segment (including portions of the trestle and bridge) and removal of a large section of the trestle in 2001.

### **Response to Comment 90**

The HRER was prepared for CEQA compliance only as stated on Page 1, Paragraph 1 of the HRER. Section 106 language was included in the HRER in the event that the project should become a federal undertaking. Letters to interested parties were sent in October 2008 to the following agencies: County of Marin Department of Parks & Open Space; Town of Corte

Madera Planning Department; City of Larkspur Planning Department; Marin History Museum (also known as Marin County Historical Society); Marin County Department of Cultural Services. The Northwestern Pacific Railroad Historical Society was inadvertently omitted from this list but will be consulted if, and when, this project requires Section 106 compliance. Text summarizing consultation with interested parties, as they pertain to cultural resources, will be included in a revised HRER should the project become a federal undertaking.

### **Response to Comment 91**

Text on Pages 18-20 of the HRER supports the conclusion of not eligible for this segment of NWP under Criterion 1. To be eligible for the California Register of Historical Resources (and National Register of Historic Places), a resource must have both significance and retain integrity to the period of significance. As outlined in the HRER (Paragraph 2, Page 18) the subject segment of the railroad, as well as the trestle and bridge, lack sufficient integrity to the potential periods of significance to warrant listing in the California Register of Historical Resources or National Register of Historic Places.

### **Response to Comment 92**

The HRER provides context (see Pages 20-22) for the evaluation of the bridge and trestle under Criterion 3.

### **Response to Comment 93**

The HRER provides sufficient evidence to support the call of ineligibility for the resources. We have no evidence that the this segment of the railroad, the bridge or trestle has been determined eligible by the State Historic Preservation Office, the Keeper of the National Register of Historic Places or through any state or federal regulatory process and Tables 4-7 in the HRER accurately reflect the current known status of these resources.

### **Response to Comment 94**

TAM appreciates the input regarding mitigation measures. However, as described in the HRER and above responses, the trestle is not an historic resource eligible for listing and does not warrant the preservation described in the suggested mitigation measure. Additionally, the structure is owned by SMART and all decisions regarding it, including modifications or its removal, will be made in consultation with SMART. However, the description of the work in the IS/MND will be modified to read, ‘Remove or retrofit a portion of the existing railroad trestle.’ Additionally, all interested parties shall be invited to a design workshop to develop and analyze alternatives, with the goal of minimizing the amount of trestle to be removed

### **Response to Comment 95**

The term “abandoned” was used in the conventional, not legal, sense.

### **Response to Comment 96**

Materials selection will be determined during the design phase of the proposed project.

**Response to Comment 97**

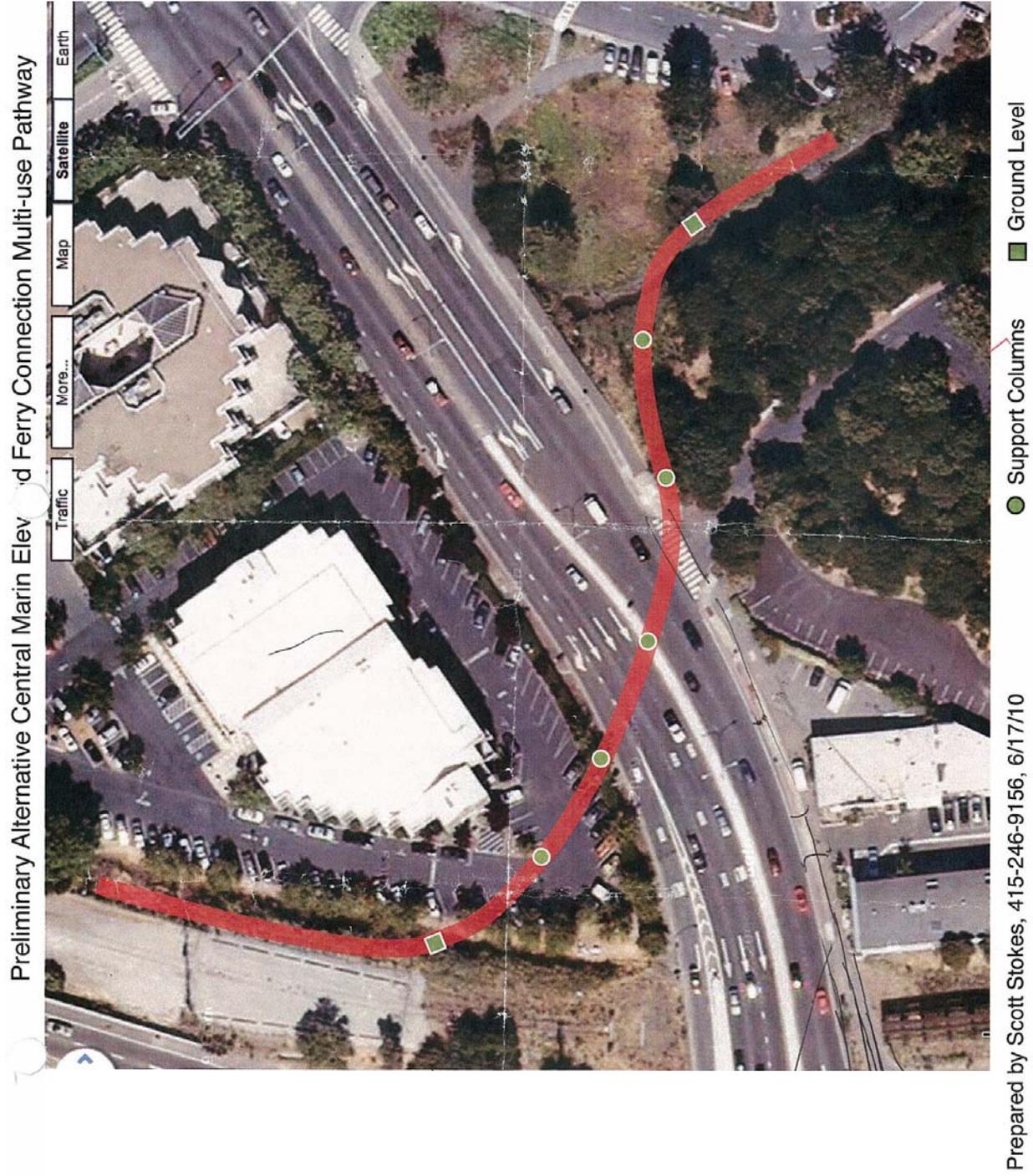
Comment noted.

**Response to Comment 98**

The marina is not located within the proposed project's Study Area.

The following alternative was proposed by Scott Stokes at the June 17, 2010.

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## **Response to Comment 99**

Refer to Response to Comment 10 for additional alternatives evaluated.

- A direct alignment from Cal Park Hill Tunnel Rehabilitation Project to the Larkspur Ferry Terminal

*Would require a substantial flyover structure that is longer and have more of a visual impact. Acquisition of additional right-of-way from private properties would be required for columns as well as the ramp approach leading to the flyover structure. There would be impacts on parking on private property and impact on the Ferry Terminal parking areas. More importantly, it would not meet one of the key objectives of the project, which is to provide direct access to existing multi-use pathway or utilize the already designated transportation corridor.*



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733 Center Blvd.  
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June 21, 2010

Transportation Authority of Marin  
Bill Whitney, Project Manager  
750 Lindero Street, Suite 200  
San Rafael, CA 94901

**Re: Comments on Draft Environmental Impact Report (DEIR) for the Central Marin Ferry Connection Project (CMFCP)**

Dear Bill,

The Marin County Bicycle Coalition (MCBC), a membership-based organization of more than 1,600 members is writing to support the DEIR for the CMFCP. We have both reviewed the document and attended the Public Workshop on June 17<sup>th</sup>, 2010, and we wish to both thank the Transportation Authority of Marin (TAM) for their diligent and thorough work on this project as well as inclusion of significantly improved bicycle and pedestrian facilities as part of the project.

We have been working with TAM for many years on this project and we are pleased to continue to add our support for moving this project forward. We encourage TAM to adopt the DEIR and move forward as quickly as possible in to construction. It is important to note that due to the economic pressures of the current economy, bids are being received 25-40% lower than original projections, and therefore the possibility of reducing overall project costs are very real.

Please let me know if you have any questions.

Many thanks,

David Hoffman  
Director of Planning

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Frances E. Barbour  
*Safe Routes Instructor*  
Heather Crawford  
*Safe Routes Instructor*

100

**Response to Comment 100**

Comment noted.