

INFORMATION HANDOUT

For Contract No. 04-209504
At 04-Mrn,Son-1-50.1/50.5, 0.0/0.2

Identified by
Project ID 0412000116

PERMITS

California Coastal Commission
United States Army Corps of Engineers
Non-Reporting Nationwide 404

WATER QUALITY

Water Quality Information Handout
CDOT State Route 1 Estero Americano Bridge Replacement Project
ECM PIN CW-818531, WDID No. 1B15135WNSO
Caltrans EA No. 04-209500

AGREEMENTS

California Department of Fish and Wildlife
Notification No. [1600-2015-0255-R3](#)

NEPA/CEQA Re-validation

Contract number, Road and Project ID.

04-209504
04-Mrn, Son-1-50.1/50.5, 0.0/0.2
Project ID 0412000116

MATERIALS INFORMATION

Summary of Foundation Recommendation Reports

Pavement Recommendations Final Hydraulic Report

CALIFORNIA COASTAL COMMISSION

NORTH CENTRAL COAST DISTRICT OFFICE
45 FREMONT STREET, SUITE 2000
SAN FRANCISCO, CALIFORNIA 94105-2219
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March 11, 2016

Permit Application No.: 2-15-1354

COASTAL DEVELOPMENT PERMIT

On **March 10, 2016**, the California Coastal Commission granted to **Caltrans** this permit subject to the attached Standard and Special conditions, for development consisting of **Replace the Highway 1 bridge over Estero Americano Creek with a new longer cast-in-place box girder bridge to provide flood control and maintain the roadway**, more specifically described in the application filed in the Commission offices.

The development is within the coastal zone at **Estero Americano Bridge and the adjacent roadways along Highway 1 at the border of Marin and Sonoma Counties**

Issued on behalf of the California Coastal Commission by

John Ainsworth
Senior Deputy Director

A handwritten signature in black ink, appearing to read "Nancy Cave".

Nancy Cave
District Manager

ACKNOWLEDGMENT:

The undersigned permittee acknowledges receipt of this permit and agrees to abide by all terms and conditions thereof.

The undersigned permittee acknowledges that Government Code Section 818.4 which states in pertinent part of that: "A Public entity is not liable for injury caused by the issuance... of any permit..." applies to the issuance of this permit.

IMPORTANT: THIS PERMIT IS NOT VALID UNLESS AND UNTIL A COPY OF THE PERMIT WITH THE SIGNED ACKNOWLEDGEMENT HAS BEEN RETURNED TO THE COMMISSION OFFICE. 14 Cal. Admin. Code Section 13158(a).

March 11, 2016

Permit Application No.: 2-15-1354

COASTAL DEVELOPMENT PERMITDate: 4/4/16Signature Wayohat**STANDARD CONDITIONS:**

1. **Notice of Receipt and Acknowledgment.** The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. **Expiration.** If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
3. **Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.
4. **Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
5. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

1. **Final Project Plans.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall submit, for the review and approval of the Executive Director, two sets of 100% design-level Final Project Plans. The Final Project Plans shall be in substantial conformance with the 95% design-level plans previously submitted shown in **Exhibit 5**.
2. **Restoration and Monitoring Plan.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall submit two sets of a Restoration and Monitoring Plan (Restoration Plan) to the Executive Director for review and approval. The Restoration Plan shall be developed in consultation with the California Department of Fish & Wildlife, and the U.S. Fish & Wildlife Service, and shall, at a minimum, include:
 - (a) **Documentation of Temporary and Permanent Impacts.** All expected temporary and permanent impacts associated with riparian vegetation, wetland drainage ditches, and

COASTAL DEVELOPMENT PERMIT

construction of the new piers and abutments, shall be documented in the Restoration Plan. The Restoration Plan shall additionally address impacts to upland and in-creek areas from staging, demolition, and construction.

- (b) **Site Plan.** A final detailed site plan of the restoration area(s) both on and off-site, with habitat acreages identified, as provided on September 10, 2015 and as appears in **Exhibits 1 and 2** for the on-site mitigation. Site plans shall clearly define the area where restoration will occur.
- (c) **Baseline.** The baseline ecological assessment of the on-site restoration area prior to vegetation removal as was provided on July 16, 2015 and as described in *Estero Americano Bridge Replacement Project, Initial Study with Mitigated Negative Declaration*. Baseline information shall also be provided for off-site mitigation locations where restoration will occur, in sufficient detail to evaluate if the chosen sites are appropriate areas for mitigation.
- (d) **Success Criteria.** The goals, objectives, and performance standards of the revegetation plan shall include explicit cover criteria for upland plantings, riparian plantings and wetland revegetation, as well as plantings in areas outside the removal zones that are to be planted as part of the on-site mitigation. Upland plantings shall be of native seed mix along the embankment approaches to the bridge. Wetlands and riparian plantings shall restore the vegetation that lines Estero Americano Creek and the floodplain as mapped in **Exhibits 1 and 2**. For degraded riparian and associated floodplain locations that are to be restored as part of the overall mitigation portfolio, nearby reference sites of intact vegetation shall be identified. A qualified biologist shall approve the suitability of the reference sites as representative of native riparian or floodplain vegetation, and shall confirm that the sites support a high percentage of native cover. Reference sites shall be ecologically self-sustaining with regard to maintenance of ecosystem functions over time. The success criteria shall be developed with the goal of establishing a plant community that is similar to the reference site in structure and function.
- (e) **Restoration Methods.** The final design and construction methods that will be used to ensure the restoration plans achieve the defined goals, objectives, and performance standards.
- (f) **Provisions for Submittal of Initial Baseline Evaluation.** Provisions for submittal, within 90 days of completion of initial restoration work, of a baseline evaluation report demonstrating that initial restoration area activities have been completed in accordance with the approved Restoration Plan.
- (g) **Monitoring and Reporting.** A reporting schedule, including that the Permittee shall submit, for the review and approval of the Executive Director, a restoration monitoring report prepared by a qualified specialist that certifies the habitat restoration is in conformance with the approved Restoration Plan, along with photographic documentation of plant species and plant coverage, beginning the first year after initiation of implementation of the Restoration Plan, and annually for at least the first five years. Final monitoring for success shall take place no sooner than 5 years following the end of all remediation and maintenance activities other than weeding. If the final report indicates that the restoration project has been unsuccessful, in

COASTAL DEVELOPMENT PERMIT

part or in whole, based on the approved success criteria, the Permittee shall, within 120 days, submit two sets of a revised or supplemental restoration program for the review and approval of the Executive Director. The revised program shall be prepared by a qualified specialist, and shall be designed to equivalently compensate for those portions of the original approved and required restoration that did not meet the approved Restoration Plan's success criteria. The approved revised or supplemental restoration program shall be carried out under the direction of the Executive Director until the restoration activities are completed consistent with the goals, objectives, and performance standards specified in the originally approved Restoration Plan and program.

- (h) Mitigation of Temporary and Permanent Impacts.** Mitigation measures for all temporary impacts associated with the construction activities for the new bridge, demolition of the old bridge, and for restoration of the wetland ditches, associated wetland buffers, upland areas, and riparian vegetation. Such mitigation shall include at a minimum, installation of erosion control devices, and as much as feasible, conducting of construction activities from upland areas. For all permanent impacts, in addition to 1:1 on-site mitigation, the Permittee shall mitigate for the loss of wetland and riparian areas at appropriate locations off-site at a ratio of 3:1 for wetlands and 2:1 for riparian areas. The location of off-site mitigation shall be approved by the Executive Director. Off-site mitigation may restore riparian areas along streams and rivers where riparian vegetation has been lost or degraded. It may also provide for restoration or creation of wetland areas, and for enhancement of degraded habitat within riparian zones. The Restoration Plan shall detail active measures to restore the riparian vegetation and for restoration of wetlands. The total minimum on- and off-site mitigation is 4.9 acres, with on-site mitigation occurring at a ratio of 1:1 or greater.

All requirements above shall be enforceable components of this CDP. The Permittee shall undertake development in accordance with this condition and the approved Restoration and Monitoring Plan.

- 3. Final Construction Plan.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall submit two sets of a Construction Plan to the Executive Director for review and approval. Minor adjustments to the following construction requirements may be allowed by the Executive Director if such adjustments: (1) are deemed reasonable and necessary; and (2) do not adversely impact coastal resources. The Construction Plan shall be in substantial conformance with those outlined in **Exhibit 5**, and at a minimum, include the following:
- (a) Construction Areas.** The Construction Plan shall identify the specific location of all construction areas, all staging areas, all storage areas, all construction access corridors (such as to and from the construction areas, storage areas, debris storage and staging areas) in site plan view. Areas within which construction activities or staging are to take place shall be minimized to avoid encroachment on sensitive habitats and species and to have the least impact on coastal resources overall.
- (b) Construction Methods and Timing.** The Construction Plan shall specify the construction methods to be used, including all methods to be used to keep the construction areas separated and buffered from sensitive habitat areas. All erosion control/water quality best management

COASTAL DEVELOPMENT PERMIT

practices shall be implemented during construction and the location of these BMPs shall be noted. All work shall take place during daylight hours. Lighting of any wetland habitat is prohibited. No earthmoving or soil disturbing work may occur from November 1 to May 31 (breeding season for the California red legged frog (CRLF)), in order to avoid breeding CRLF.

(c) **Construction Requirements.** The Construction Plan applies to initial construction as well as future maintenance. The Construction Plan shall include the following construction requirements specified by written notes on the Construction Plan:

- (1) Prior to the commencement of any development authorized under this CDP, the Permittee shall ensure that all on-site workers and contractors understand and agree to observe the standards for work outlined in this CDP and in the detailed project description included as part of the application submittal as revised by these conditions.
- (2) Prior to commencement of ground-disturbing activities, erosion, sediment, and runoff control measures shall be deployed in accordance with the final Storm Water Pollution Prevention Plan approved pursuant to **Special Condition 4**, and all measures shall be properly maintained throughout the duration of construction activities. Plastic monofilament netting (erosion control matting) or similar material may not be used at the project site. Acceptable substitutes include coconut coir matting or tackifier hydroseeding compounds.
- (3) Prior to the commencement of construction, the limits of the work areas and staging areas shall be delineated in consultation with a qualified biologist, limiting the potential area affected by construction and ensuring that all wetlands and other habitats adjacent to construction areas are avoided during construction. All vehicles and equipment shall be restricted to pre-established work areas and haul routes and to established or designated staging areas.
- (4) All trash shall be properly contained, removed from the work site, and disposed of on a regular basis to avoid contamination of habitat during construction activities. Any debris inadvertently discharged into coastal waters shall be recovered immediately and disposed of consistent with the requirements of this CDP. The construction site shall maintain good construction housekeeping controls and procedures (e.g., clean up all leaks, drips, and other spills immediately; keep materials covered and out of the rain, including covering exposed piles of soil and wastes; dispose of all wastes properly, place trash receptacles on site for that purpose, and cover open trash receptacles during wet weather; remove all construction debris from the site).
- (5) Topsoil removed by grading operations shall be stockpiled for reuse and shall be protected from compaction and wind or erosion during stockpiling.
- (6) Equipment staging, materials storage, and stockpiling areas shall be limited to the locations and sizes specified in the approved construction plans. Construction vehicles shall be restricted to designated haul routes. Construction equipment and materials shall

COASTAL DEVELOPMENT PERMIT

be stored only in designated staging and stockpiling areas as depicted on the approved construction plans.

- (7) Any fueling and maintenance of construction equipment shall occur within upland areas outside of habitat areas or within designated staging areas. Mechanized heavy equipment and other vehicles used during the construction process shall not be refueled or washed within 100 feet of coastal waters.
 - (8) Fuels, lubricants, and solvents shall be prevented from entering coastal waters or wetlands. Hazardous materials management equipment, including oil containment booms and absorbent pads, shall be easily available at the project site, and a registered professional first-response hazardous materials clean-up/remediation service that serves the locality shall be on call. Any accidental spill shall be immediately contained and cleaned up.
 - (9) To prevent the inadvertent entrapment of the CRLF, all excavated, steep-walled holes or trenches more than 1 foot deep shall be covered at the close of each working day with plywood or similar materials. If it is not feasible to cover an excavation, one or more escape ramps constructed of earthen fill or wooden planks shall be installed.
- (d) Construction Site Documents.** The plan shall provide that a copy of the signed CDP and the approved Construction Plan shall be maintained in a conspicuous location at the construction job site at all times, and that the CDP and the approved Construction Plan are available for public review on request.
- (e) Construction Coordinator.** The plan shall provide that a construction coordinator be available 24 hours a day for the public to contact during construction should questions arise regarding the construction. Contact information for the coordinator, including a mailing address, e-mail address and phone number, shall be conspicuously posted at the job site in a place that is visible from public viewing areas, along with information that the construction coordinator should be contacted in the case of any questions regarding the construction. The construction coordinator shall record the name, phone number, and nature of all complaints received regarding the construction, and shall investigate complaints and take remedial action, if necessary, within 72 hours of receipt of the complaint or inquiry.
- (f) Restoration.** All areas impacted by construction activities, except for onsite mitigation areas, shall be restored to their pre-construction condition or better upon completion of construction, and during the interim between construction seasons. An implementation and completion schedule for restoration activities shall be submitted as part of the restoration and monitoring plan.
- (g) Notification.** The Permittee shall notify planning staff of the Coastal Commission's North Central Coast District Office at least three working days in advance of commencement of construction during all phases of approved work, and immediately upon completion of construction.

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All requirements above and all requirements of the approved Construction Plan shall be enforceable components of this CDP. The Permittee shall undertake development in accordance with this condition and the approved Construction Plan.

4. **Final Storm Water Pollution Prevention Plan.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall submit two sets of a final Storm Water Pollution Prevention Plan (SWPPP) to the Executive Director for review and approval. Minor adjustments to the following requirements may be allowed by the Executive Director if such adjustments: (1) are deemed reasonable and necessary; and (2) do not adversely impact coastal resources. The final SWPPP shall include provisions for all of the following:
- (a) **Sedimentation Controlled.** Runoff from the project site may not increase sedimentation in coastal waters or wetlands post-construction. During construction, runoff from the project site may not increase sedimentation in coastal waters beyond what is allowed under the final Water Quality Certification approved for the project by the Regional Water Quality Control Board.
 - (b) **Pollutants Controlled.** Other than as allowed by **Special Condition 4(a)**, no other pollutants may enter coastal waters or wetlands during construction or post-construction.
 - (c) **BMPs.** Best Management Practices (BMPs) shall be used to prevent the entry of polluted stormwater runoff into coastal waters and wetlands during construction and post-construction. This includes the use of relevant BMPs in the Proposed Avoidance and Minimization Measures documented in **Exhibit 3** and submitted by the Applicant on July 16, 2015.
 - (d) **Spill Measures.** An on-site spill prevention and control response program, consisting of BMPs for the storage of clean-up materials, training, designation of responsible individuals, and reporting protocols to the appropriate public and emergency services agencies in the event of a spill, shall be implemented at the project to capture and clean-up any accidental or other releases of oil, grease, fuels, lubricants, or other hazardous materials, including to prevent materials from entering coastal waters or wetlands.

All requirements above and all requirements of the approved SWPPP shall be enforceable components of this CDP. The Permittee shall undertake development in accordance with this condition and the approved SWPPP.

5. **Coastal Hazards Risk.** By acceptance of this CDP, the Permittee acknowledges and agrees, on behalf of itself and all successors and assigns:
- (a) **Assume Risks.** To assume the risks to the Permittee and the property that is the subject of this CDP of injury and damage from coastal hazards due to flooding.
 - (b) **Waive Liability.** To unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such coastal hazards;

COASTAL DEVELOPMENT PERMIT

- (c) **Permittee Responsible.** That any adverse effects to property caused by the permitted project shall be fully the responsibility of the Permittee.
- (d) **Indemnification.** The Permittee indemnify and hold harmless the Coastal Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, or amounts paid in settlement arising from any injury or damage due to such hazards.
6. **Other Agency Review and Approval.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall submit to the Executive Director written evidence that all necessary permits, permissions, approvals, and authorizations for the approved project have been granted by all applicable agencies or evidence that no additional authorizations are necessary. Any changes to the approved project required by these agencies shall be reported to the Executive Director. No changes to the approved project shall occur without a Commission amendment to this CDP unless the Executive Director determines that no amendment is legally necessary.



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET, 16TH FLOOR
SAN FRANCISCO, CALIFORNIA 94103-1398

MAR 16 2016

Regulatory Division

Subject: File Number 2013-00316N

Mr. Christopher Pincetich
California Department of Transportation
111 Grand Avenue
Oakland, California 94623

Dear Mr. Pincetich:

This correspondence is in reference to your submittal of June 11, 2015, concerning Department of the Army (DA) authorization to improve roadway safety and provide roadway flood relief by replacing the bridge on State Route 1 over Estero Americano Creek located in an unincorporated area on the Marin County and Sonoma County line, approximately 1.5 miles east of Valley Ford, Sonoma County, California (Lat. 38.31344°N / Long. 122.89739°W).

Work within U.S. Army Corps of Engineers' (Corps) jurisdiction will include: replacement of the existing 146-foot long, 24-foot wide bridge with a 266-foot long, 40-foot wide bridge slightly east of the current alignment; widening of the existing roadway from 10- to 11-foot lanes with 0 to 1-foot shoulders to 12-foot lanes with 6-foot shoulders and corresponding slight shift to the east to conform to the new bridge within the project limits; installation of new roadway retaining walls with metal guard railing mounted to them; and temporary dewatering of the construction site using diversion structures temporarily constructed within Estero Americano Creek. Work will require placement of approximately 244 cubic yards of fill within 0.696 acre of roadside wetland ditch and Estero Americano Creek, of which 0.262 acre will be permanent impacts to roadside wetland ditch and the remaining 0.434 acre will be temporary impacts to both roadside wetland ditch and Estero Americano Creek. All work shall be completed in accordance with the plans and drawings titled "*State of California, Department of Transportation, Project Plans for Construction on State Highway in Main and Sonoma County, near Valley Ford, from 0.4 mile South of Estero Americano Bridge to 0.2 mile North of Estero Americano Bridge, Contract No. 04-209501, Project ID 0412000116,*" in 46 sheets, dated April 22, 2015, provided as enclosure 1.

Section 404 of the Clean Water Act (CWA) generally regulates the discharge of dredged or fill material below the plane of ordinary high water in non-tidal waters of the United States, below the high tide line in tidal waters of the United States, and within the lateral extent of wetlands adjacent to these waters. Section 10 of the Rivers and Harbors Act generally regulates construction of structures and work, including excavation, dredging, and discharges of dredged or fill material, occurring below the plane of mean high water in tidal waters of the United States; in former diked baylands currently below mean high water; outside the limits of mean

high water but affecting the navigable capacity of tidal waters; or below the plane of ordinary high water in non-tidal waters designated as navigable waters of the United States. Navigable waters of the United States generally include all waters subject to the ebb and flow of the tide; and/or all waters presently used, or have been used in the past, or may be susceptible for future use to transport interstate or foreign commerce. A Preliminary Jurisdictional Determination (JD) has been completed for your site. Preliminary JDs are written indications that there may be waters of the U.S. on a parcel or indications of the approximate location(s) of waters of the U.S. on a parcel. Preliminary JDs are advisory in nature and may not be appealed. While this preliminary jurisdictional determination was conducted pursuant to Regulatory Guidance Letter No. 08-02, *Jurisdictional Determinations*, it may be subject to future revision if new information or a change in field conditions becomes subsequently apparent. The basis for this preliminary jurisdictional determination is fully explained in the enclosed *Preliminary Jurisdictional Determination Form* which has been signed and dated by you and this office. Please see the enclosed Preliminary JD map titled, “*Figure 3-1, Potential Jurisdictional Waters of the U.S., Delineation of Waters of the United States, Estero Americano Bridge Replacement Project, SR 1, PM 50.1 to 50.5 MRN/0.0 to 0.2 SON, EA 209500, Marin and Sonoma Counties, California,*” in one sheet and dated June 16, 2015 (enclosure 2).

Based on a review of the information in your submittal and the current condition of the site, as verified during a field investigation on March 10, 2016, the project qualifies for authorization under Department of the Army Nationwide Permit (NWP) 14 for *Linear Transportation Projects*, 77 Fed. Reg. 10,184 (Feb. 21, 2012) (enclosure 3), pursuant to Section 404 of the CWA of 1972, as amended (33 U.S.C. § 1344 *et seq.*). The project must be in compliance with the terms of the NWP, the general conditions of the Nationwide Permit Program (http://www.spn.usace.army.mil/Portals/68/docs/regulatory/Nationwide/NWP_Gen_Cond.pdf), and the San Francisco District regional conditions cited on our website (http://www.spn.usace.army.mil/Portals/68/docs/regulatory/Nationwide/Reg_Cond.pdf). You must also be in compliance with any special conditions specified in this letter for the NWP authorization to remain valid. Non-compliance with any term or condition could result in the revocation of the NWP authorization for your project, thereby requiring you to obtain an Individual Permit from the Corps. This NWP authorization does not obviate the need to obtain other State or local approvals required by law.

This verification will remain valid until March 18, 2017, unless the NWP authorization is modified, suspended, or revoked. Activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon a NWP will remain authorized provided the activity is completed within 12 months of the date of a NWP’s expiration, modification, or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 C.F.R. § 330.4(e) and 33 C.F.R. § 330.5 (c) or (d). This verification will remain valid if, during the time period between now and March 18, 2017, the activity complies with any subsequent modification of the

NWP authorization. The Chief of Engineers will periodically review NWPs and their conditions and will decide to modify, reissue, or revoke the permits. If a NWP is not modified or reissued within five years of its effective date, it automatically expires and becomes null and void. It is incumbent upon you to remain informed of any changes to the NWPs. Changes to the NWPs would be announced by Public Notice posted on our website (<http://www.spn.usace.army.mil/Missions/RegulatoryPublicNotices.aspx>). Upon completion of the project and all associated mitigation requirements, you shall sign and return the Certification of Compliance, enclosure 4, verifying that you have complied with the terms and conditions of the permit.

This authorization will not be effective until you have obtained a Section 401 water quality certification from the North Coast Regional Water Quality Control Board (RWQCB). If the RWQCB fails to act on a valid request for certification within two months after receipt of a complete application, the Corps will presume a waiver of water quality certification has been obtained. You shall submit a copy of the certification to the Corps prior to the commencement of work.

This authorization will not be effective until you have obtained a concurrence from the California Coastal Commission that your project will comply with California's Coastal Zone Management Act. If the Commission fails to act on a valid request for concurrence with your certification within six months after receipt, the Corps will presume a concurrence has been obtained. You shall submit a copy of the concurrence to the Corps prior to the commencement of work.

General Condition 18 stipulates that project authorization under a NWP does not allow for the incidental take of any federally-listed species in the absence of a biological opinion (BO) with incidental take provisions. As the principal federal lead agency for this project, Caltrans initiated consultation with the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) to address project related impacts to listed species, pursuant to Section 7(a) of the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 *et seq.*). By letter of December 1, 2014, USFWS, issued a BO (USFWS File No. 08ESMF00-2013-F-0196-2) cited in enclosure 5, with an incidental take statement for California red-legged frog. By electronic mail of September 9, 2015, NMFS concluded coordination with Caltrans and issued concurrence that the proposed project is covered under a Programmatic BO for Caltrans' Routine Maintenance and Repair Activities Program in Caltrans' Districts 1, 2, and 4 (NMFS File No. 2013-9731, dated October 18, 2013) cited in enclosure 6, which you also have in your possession, with an incidental take statement for Central California Coast steelhead. As the principal federal lead agency for this project, Caltrans initiated consultation with the National Marine Fisheries Service (NMFS) to address project related impacts to Essential Fish Habitat (EFH) for various life stages of fish species managed with the Pacific Coast Salmon Fishery Management Plan, pursuant to Magnuson-Stevens Fishery Conservation and Management Act of

1996, as amended (16 U.S.C. § 1801 *et seq.*). In the same October 18, 2013 Programmatic BO, NMFS determined the proposed action contains adequate measures to avoid, minimize, mitigate or otherwise offset the adverse effects to EFH in freshwater habitat and made no conservation recommendations to Caltrans or the Corps.

In order to ensure compliance with this NWP authorization, the following special conditions shall be implemented:

1. To remain exempt from the prohibitions of Section 9 of the Endangered Species Act, the non-discretionary Terms and Conditions for incidental take of federally-listed California red-legged frog, shall be fully implemented as stipulated in the Biological Opinion entitled, "*Biological Opinion for the State Route 1 Americano Creek Bridge Replacement Project, Marin and Sonoma Counties, California (Caltrans EA 209500)*," pages 19-25, dated December 1, 2014 (enclosure 5). Project authorization under the NWP is conditional upon compliance with the mandatory terms and conditions associated with incidental take. Failure to comply with the terms and conditions for incidental take, where a take of a federally-listed species occurs, would constitute an unauthorized take and non-compliance with the NWP authorization for your project. The USFWS is, however, the authoritative federal agency for determining compliance with the incidental take statement and for initiating appropriate enforcement actions or penalties under the Endangered Species Act.
2. To remain exempt from the prohibitions of Section 9 of the Endangered Species Act, the non-discretionary Terms and Conditions for incidental take of federally-listed CCC steelhead, shall be fully implemented as stipulated in the Programmatic Biological Opinion entitled, "*Caltrans' Routine Maintenance and Repair Activities in Districts 1, 2, and 4, and individual Corps permits for these activities*," pages 97-101, dated October 18, 2013 (enclosure 6). Project authorization under the NWP is conditional upon compliance with the mandatory terms and conditions associated with incidental take. Failure to comply with the terms and conditions for incidental take, where a take of a federally-listed species occurs, would constitute an unauthorized take and non-compliance with the NWP authorization for your project. The NMFS is, however, the authoritative federal agency for determining compliance with the incidental take statement and for initiating appropriate enforcement actions or penalties under the Endangered Species Act.
3. Incidents where any individuals of CCC steelhead listed by NOAA Fisheries under the Endangered Species Act appear to be injured or killed as a result of discharges of dredged or fill material into waters of the United States or structures or work in navigable waters of the United States authorized by this NWP shall be reported to NOAA Fisheries, Office of Protected Resources at (301) 713-1401 and the

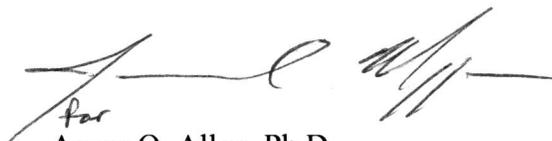
Regulatory Office of the San Francisco District of the U.S. Army Corps of Engineers at (415) 503-6795. The finder should leave the plant or animal alone, make note of any circumstances likely causing the death or injury, note the location and number of individuals involved and, if possible, take photographs. Adult animals should not be disturbed unless circumstances arise where they are obviously injured or killed by discharge exposure, or some unnatural cause. The finder may be asked to carry out instructions provided by NOAA Fisheries, Office of Protected Resources, to collect specimens or take other measures to ensure that evidence intrinsic to the specimen is preserved.

4. The permittee shall complete 0.36-acre of wetland establishment on-site and 0.29-acre of wetland restoration on-site for the purpose of compensatory mitigation, as proposed in enclosure 7. No project construction within waters of the U.S. shall occur until the Corps has reviewed and approved a complete Mitigation and Monitoring Plan.
5. Your responsibility to complete the required compensatory mitigation as set forth in Special Condition 4 will not be considered fulfilled until you have demonstrated mitigation success and have received written verification from the U.S. Army Corps of Engineers.

You may refer any questions on this matter to Mr. Jim Mazza of my Regulatory staff by telephone at (415) 503-6775 or by e-mail at James.C.Mazza@usace.army.mil. All correspondence should be addressed to the Regulatory Division, North Branch, referencing the file number at the head of this letter.

The San Francisco District is committed to improving service to our customers. My Regulatory staff seeks to achieve the goals of the Regulatory Program in an efficient and cooperative manner, while preserving and protecting our nation's aquatic resources. If you would like to provide comments on our Regulatory Program, please complete the Customer Service Survey Form available on our website: <http://www.spn.usace.army.mil/Missions/Regulatory.aspx>

Sincerely,

A handwritten signature in black ink, appearing to read "Aaron O. Allen". The signature is stylized and cursive.

Aaron O. Allen, Ph.D.
Acting Chief, Regulatory Division

Enclosures

Copy Furnished (w/ encl 1 only):

CA RWQCB, Santa Rosa, CA – Attn: Mr. Brandon Stevens

Copies Furnished (w/o encls):

U.S. FWS, Sacramento, CA – Attn: Mr. John Cleckler

U.S. NMFS, Santa Rosa, CA – Attn: Mr. Darren Howe

CA DFW, Napa, CA – Attn: Ms. Melissa Escaron

CA Coastal Commission, San Francisco, CA – Attn: Ms. Laurie Koteen

North Coast Regional Water Quality Control Board

May 9, 2016

California Department of Transportation
Attn: Mr. Wajahat Nyaz
111 Grand Ave.
Oakland, CA 94612

Dear Mr. Nyaz:

Subject: Amendment to the Federal Clean Water Act, Section 401, Water Quality Certification for the Estero Americano Bridge Replacement Project

Files: CDOT State Route 1 Estero Americano Bridge Replacement Project
ECM PIN CW-818531, WDID No. 1B15135WNSO
Caltrans EA No. 04-209500

On May, 2, 2016, we received your email requesting an amendment to the April, 21, 2016, Federal Clean Water Act, Section 401, Water Quality Certification (certification) for the Estero Americano Bridge Replacement Project (Project).

In response to your request, this letter serves as an amendment to Finding 5 and Project-Specific Condition 2 of the certification. Finding 5 and Condition 2 have been amended to adjust for construction timing and mitigation completion. The certification is hereby amended as described below. Additions and deletions to the original certification are represented by underlined and strikethrough text, respectively.

Finding 5: The Project is expected to require 2 years of construction. The Project is proposed to begin in ~~April 2016~~May 2016, and be completed in ~~April 2018~~November 2018. Work within waters will be conducted in the dry season (June 15- October 15).

Condition 2: Caltrans shall install a bioswale onsite to treat no less than 1.35 acres of impervious surface runoff. The bioswale shall be amended with imported biofiltration soil incorporated to a depth of 4 feet. The bioswale shall be vegetated using native grass seed. Caltrans shall submit photographs of

completed and fully vegetated bioswale no later than ~~May 1~~December 1,
2018.

I hereby issue an amendment to the project description in Finding 5 and Condition 2 in the Conditions of the certification for the Estero Americano Bridge Replacement Project (WDID No. 1B15135WNSO) certifying that the remainder of the Water Quality Certification sections of the April, 21, 2016, Order are still valid.

If you have any questions or comments, please contact Brandon Stevens at (707) 576-2377 or at Brandon.Stevens@waterboards.ca.gov.

Sincerely,

Matthias St. John
Executive Officer

160509_BDS_dp_CDOT_HWY1_EsterAmericano_401Amend

**WATER QUALITY INFORMATION HANDOUT
CONTRACT NO. 209504**

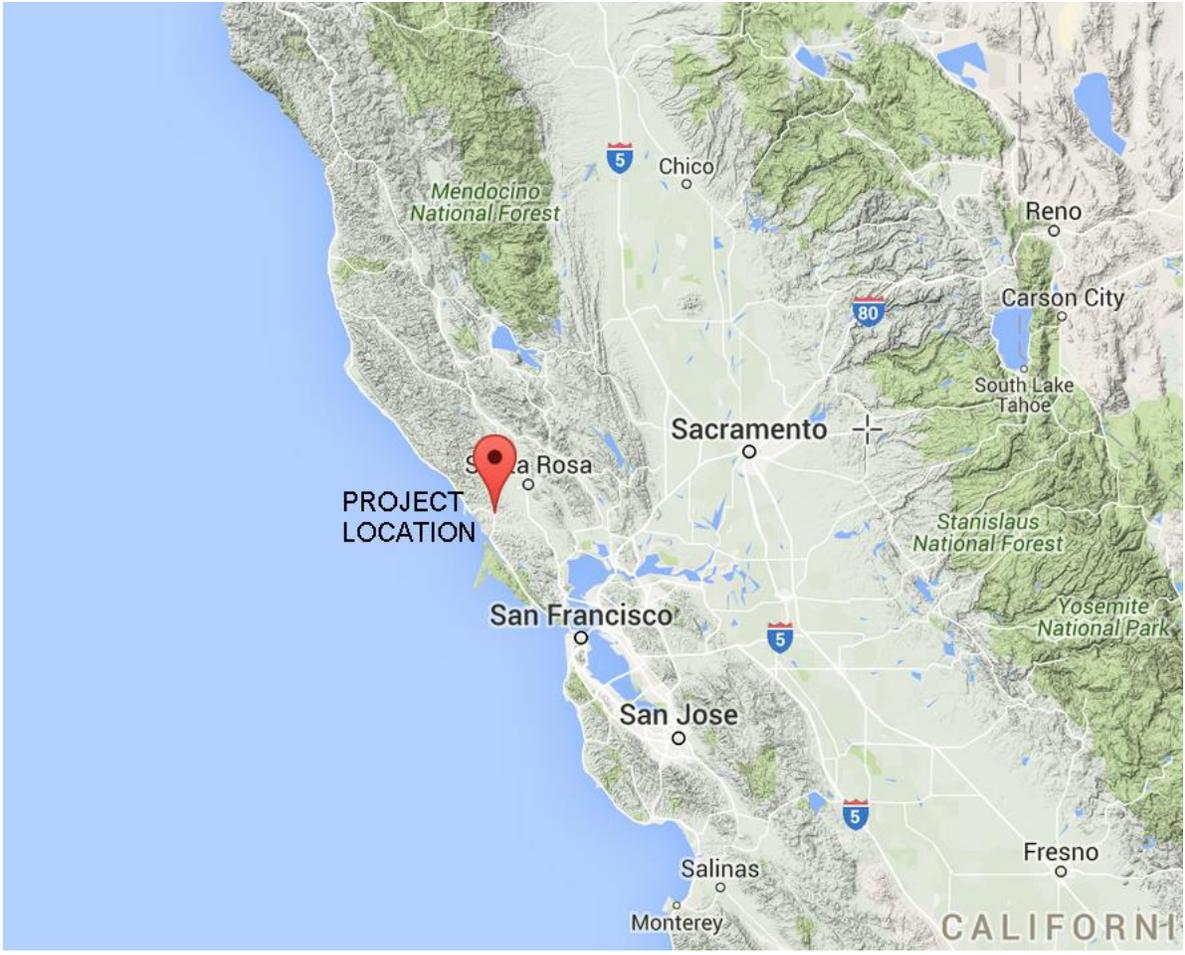
**Estero Americano Bridge Replacement
Marin and Sonoma Counties on Interstate 1
04-Mrn-1-PM 50.1/50.5
04-Son-1-PM 0.0/0.2**

California Department of Transportation
District 4, 111 Grand Avenue
Oakland, CA 94612

Disclaimer

A "Disclaimer" is required specifying that the information provided in the Storm Water Information Handout is just a guideline and is to be used for information purposes only and should not be considered a sole source document to adhere to the requirements of the new National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP), Number CAS000002, adopted on September 2, 2009. The contractor is required to provide water quality monitoring, sampling and implement best management practices (BMPs) based on standard industry operations, field conditions and conditions encountered based on the contractor's means and methods. The information in this handout is not to be construed in any way as a waiver of the provisions in the CGP. Bidders and contractors are cautioned to make independent investigations and examinations as they deem necessary to satisfy the conditions encountered in performance of work, with respect to the following: sampling and monitoring locations, distribution of watershed areas for sizing of BMPs, and selection of BMPs in order to conform to the requirement of the contract documents and the CGP.

Project Vicinity



PROJECT
LOCATION

Santa Rosa

Sacramento

San Francisco

San Jose

Salinas

Monterey

Reno

Carson City

South Lake
Tahoe

Stanislaus
National Forest

Yosemite
National Park

Fresno

CALIFORNIA

Risk Assessment

	A	B	C
1	Sediment Risk Factor Worksheet		Entry
2	A) R Factor		
3	Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.		
4	http://water.epa.gov/polwaste/npdes/stormwater/Welcome-to-the-Rainfall-Erosivity-Factor-Calculator.cfm		
5	R Factor Value		154.1
6	B) K Factor (weighted average, by area, for all site soils)		
7	The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.		
8	Site-specific K factor guidance		
9	K Factor Value		0.37
10	C) LS Factor (weighted average, by area, for all slopes)		
11	The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.		
12	LS Table		
13	LS Factor Value		0.5
14			
15	Watershed Erosion Estimate (=R_xK_xLS) in tons/acre		28.5085
16	Site Sediment Risk Factor		Medium
17	Low Sediment Risk: < 15 tons/acre		
18	Medium Sediment Risk: >=15 and <75 tons/acre		
19	High Sediment Risk: >= 75 tons/acre		
20			

Receiving Water (RW) Risk Factor Worksheet

Entry

A. Watershed Characteristics

yes/no

A.1. Does the disturbed area discharge (either directly or indirectly) to a **303(d)-listed waterbody impaired by sediment** (For help with impaired waterbodies please visit the link below) or has a **USEPA approved TMDL implementation plan for sediment**?:

http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml

OR

A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? (For help please review the appropriate Regional Board Basin Plan)

http://www.waterboards.ca.gov/waterboards_map.shtml

yes

[Region 1 Basin Plan](#)

[Region 2 Basin Plan](#)

[Region 3 Basin Plan](#)

[Region 4 Basin Plan](#)

[Region 5 Basin Plan](#)

[Region 6 Basin Plan](#)

[Region 7 Basin Plan](#)

[Region 8 Basin Plan](#)

[Region 9 Basin Plan](#)

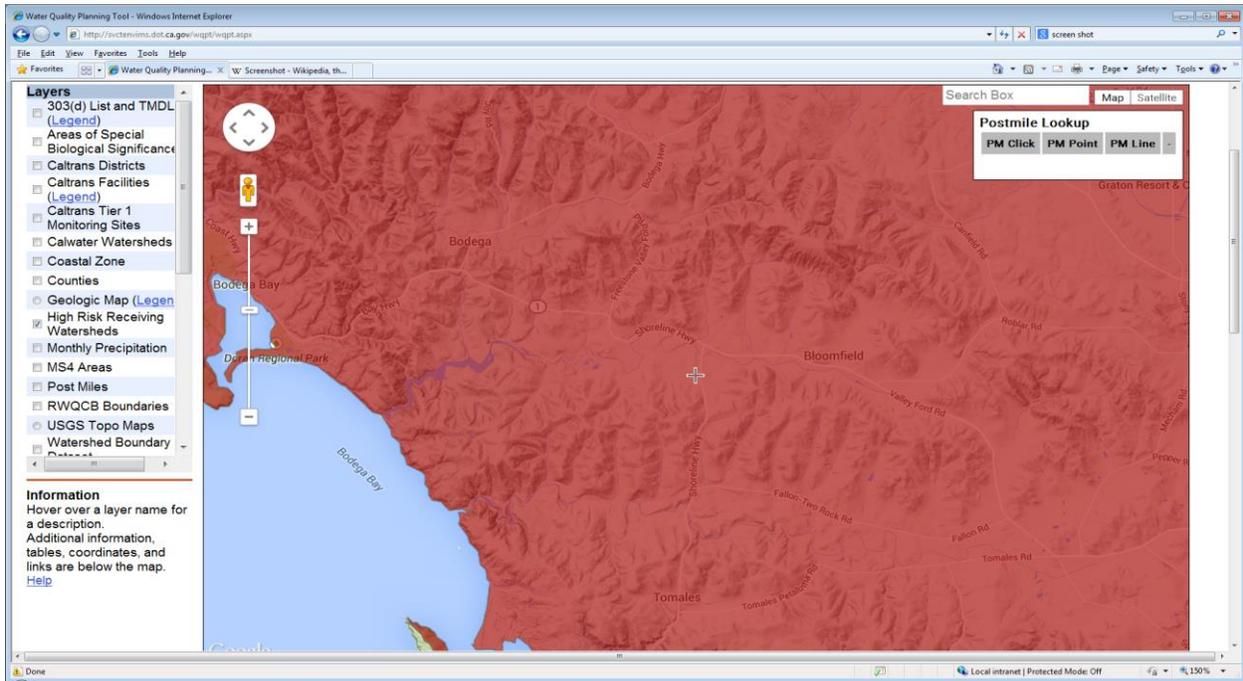
Combined Risk Level Matrix

		<u>Sediment Risk</u>		
		Low	Medium	High
<u>Receiving Water Risk</u>	Low	Level 1	Level 2	
	High	Level 2		Level 3

Project Sediment Risk: **Medium**

Project RW Risk: **High**

Project Combined Risk: **Level 2**



Web Soil Survey - Windows Internet Explorer
 http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Layer Options (Horizon Aggregation Method)

- Higher
- Surface Layer (Not applicable)
- Depth Range (Weighted Average)
 - Top Depth:
 - Bottom Depth:
 - Inches
 - Centimeters
- All Layers (Weighted Average)

[View Description](#) [View Rating](#)

K Factor, Whole Soil
 T Factor
 Wind Erodibility Group
 Wind Erodibility Index
 Soil Physical Properties
 Soil Qualities and Features
 Water Features

Intended to be used. Mapping of soils is done at a particular scale. The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000. The design of map units and the level of detail shown in the resulting soil map are dependent on that map scale. Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Tables — K Factor, Rock Free — Summary By Map Unit

Summary by Map Unit — Marin County, California (CA041)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
105	Blucher-Cole complex, 2 to 5 percent slopes	.37	4.9	42.5%
Subtotals for Soil Survey Area			4.9	42.5%

Summary by Map Unit — Sonoma County, California (CA097)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
105m	Blucher-Cole complex, 2 to 5 percent slopes	.37	1.6	13.8%
BcA	Blucher fine sandy loam, overwash, 0 to 2 percent slopes	.20	4.1	35.4%
SnC	Steinbeck loam, 2 to 9 percent slopes	.24	1.0	8.2%
Subtotals for Soil Survey Area			6.7	57.5%
Totals for Area of Interest			11.6	100.0%

Bodega HU, Estero Americano HA, estuary Details - Windows Internet Explorer

http://svtcmnms.dot.ca.gov/wqpt/WS303d.aspx?WB=CAE115300121999021734534

Bodega HU, Estero Americano HA, estuary Details



TMDLS & 303(D) LIST (2010) FOR BODEGA HU, ESTERO AMERICANO HA, ESTUARY

Key: Pollutant on 303(d) list Pollutant with a TMDL

Pollutant	Source	Size	Status	Comments
Nutrients	Manure Lagoons	199 Acres	TMDL required	The Bodega HU, Estero Americano HA, Americano Creek includes the following Calwater Super Planning Watersheds (SPWs): 115.30010 and 115.30011. A Water Quality Attainment Strategy is attempting to increase voluntary measures for attainment of standards & o
Nutrients	Range Grazing-Riparian and/or Upland	199 Acres	TMDL required	The Bodega HU, Estero Americano HA, Americano Creek includes the following Calwater Super Planning Watersheds (SPWs): 115.30010 and 115.30011. A Water Quality Attainment Strategy is attempting to increase voluntary measures for attainment of standards & o
Sedimentation/Siltation	Erosion/Siltation	199 Acres	TMDL required	A Water Quality Attainment Strategy is attempting to increase voluntary measures for attainment of standards & objectives, as was done in the Estero de San Antonio/Stemple Creek TMDL Water Quality Attainment Strategy, adopted by North Coast RWQCB in Decem
Sedimentation/Siltation	Hydromodification	199 Acres	TMDL required	A Water Quality Attainment Strategy is attempting to increase voluntary measures for attainment of standards & objectives, as was done in the Estero de San Antonio/Stemple Creek TMDL Water Quality Attainment Strategy, adopted by North Coast RWQCB in Decem
Sedimentation/Siltation	Nonpoint Source	199 Acres	TMDL required	A Water Quality Attainment Strategy is attempting to increase voluntary measures for attainment of standards & objectives, as was done in the Estero de San Antonio/Stemple Creek TMDL Water Quality Attainment Strategy, adopted by North Coast RWQCB in Decem
Sedimentation/Siltation	Range Grazing-Riparian	199 Acres	TMDL required	A Water Quality Attainment Strategy is attempting to increase voluntary measures for attainment of standards & objectives, as was done in the Estero de San Antonio/Stemple Creek TMDL Water Quality Attainment Strategy, adopted by North Coast RWQCB in Decem
Sedimentation/Siltation	Removal of Riparian Vegetation	199 Acres	TMDL required	A Water Quality Attainment Strategy is attempting to increase voluntary measures for attainment of standards & objectives, as was done in the Estero de San Antonio/Stemple Creek TMDL Water Quality Attainment Strategy, adopted by North Coast RWQCB in Decem
Sedimentation/Siltation	Streambank Modification/Destabilization	199 Acres	TMDL required	A Water Quality Attainment Strategy is attempting to increase voluntary measures for attainment of standards & objectives, as was done in the Estero de San Antonio/Stemple Creek TMDL Water Quality Attainment Strategy, adopted by North Coast RWQCB in Decem

Done Local intranet | Protected Mode: Off 150%

Water Quality Planning Tool - Windows Internet Explorer

http://svtcmnms.dot.ca.gov/wqpt/wqpt.aspx

Water Quality Planning - Screenshot - Wikipedia, th...

Caltrans > DEA > Stormwater > Water Quality Planning Tool

USGS Topo Maps

Watershed Boundary Dataset

Zip Codes

Soil Loss Factors

Erosivity Index

Soils (K Factors)

R Factor (calculations)

LS Factor

Compliance Storm Events

5-yr 24-hr North

10-yr 24-hr North

5-yr 24-hr South

10-yr 24-hr South

Distance and Area

Measure

Feet: 0

Acres: 0

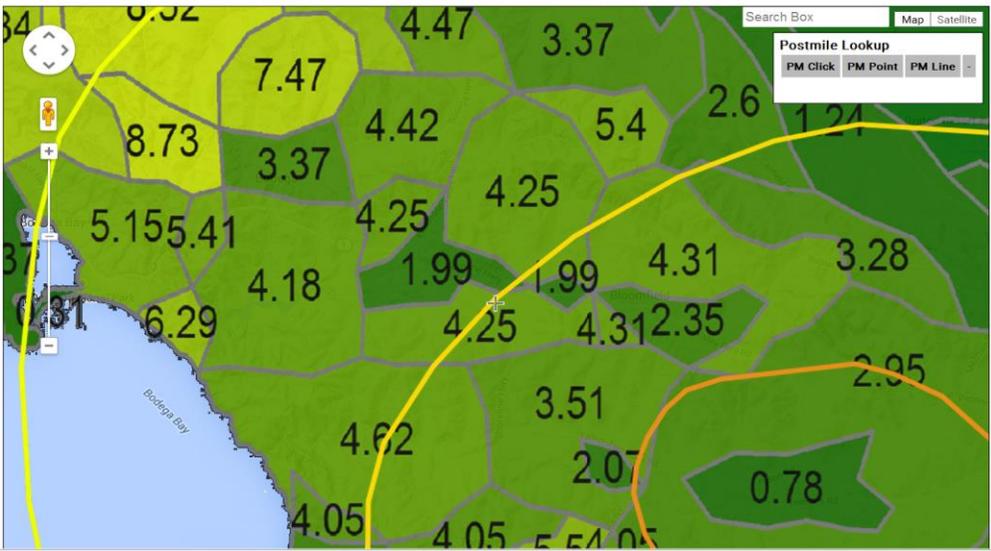
Postmile Lookup

Information

Hover over a layer name for a description. Additional information, tables, coordinates, and links are below the map.

[Help](#)

Postmile Lookup



Done Local intranet | Protected Mode: Off 150%

Rainfall Data

Rainfall Intensity can be obtained by the following link:

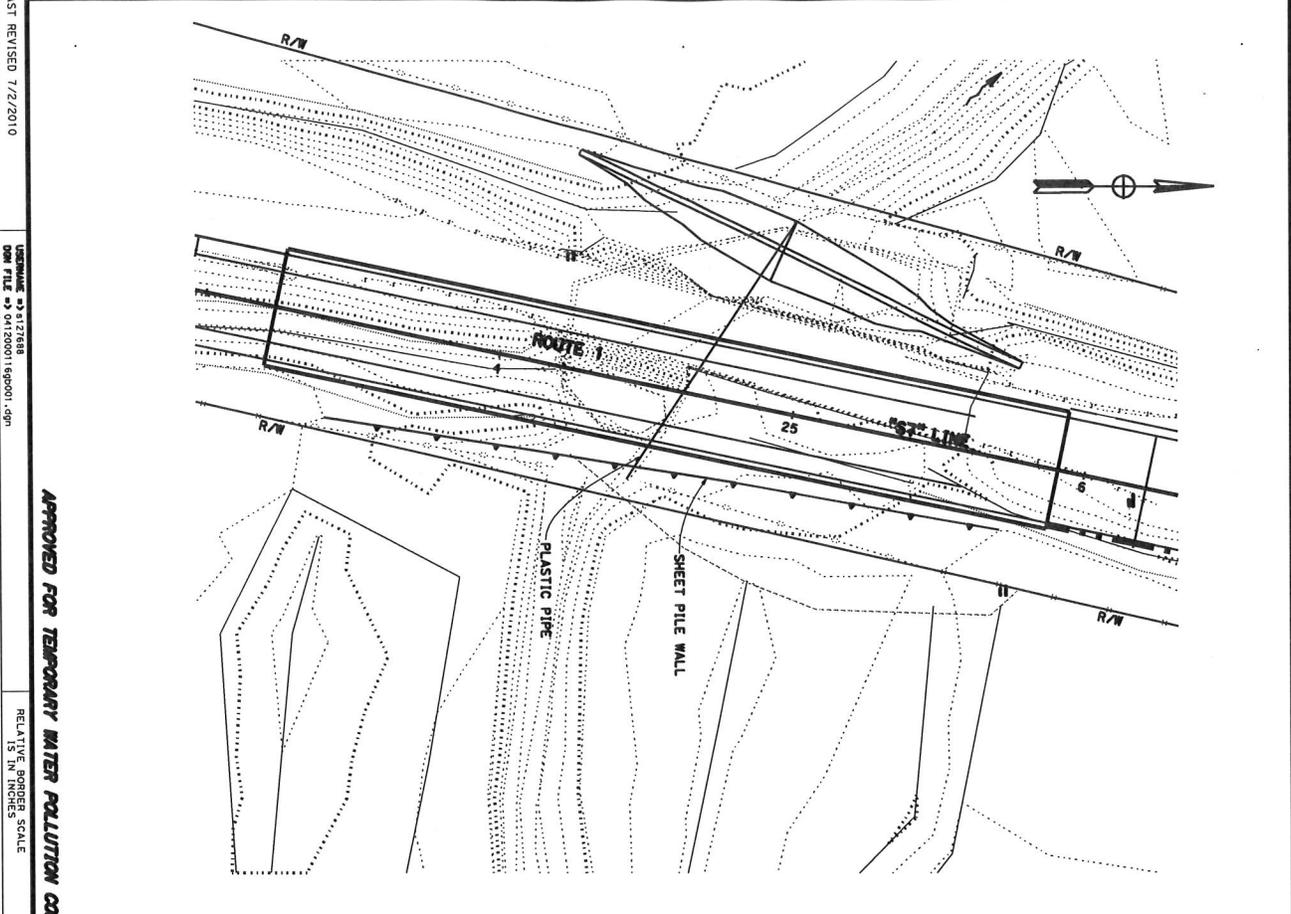
<http://www.wrcc.dri.edu/pcpnfreq/nca5y24.gif>

Refer to Chapters 800, Highway Drainage Design of Highway Design Manual for information on runoff coefficient and shed map. The weighted runoff coefficient of 0.55 is recommended for the project area.

Average number of days per month with precipitation:

Month	≥ 0.1 in	≥ 0.5 in
January	9.7	6.4
February	8.3	5.4
March	8.3	4.8
April	5.1	2.2
May	2.3	0.9
June	0.7	0.2
July	0.1	0
August	0.5	0.1
September	1	0.3
October	3.3	1.5
November	6.9	4.3
December	8.8	5.7
Yearly Total	55.1	32

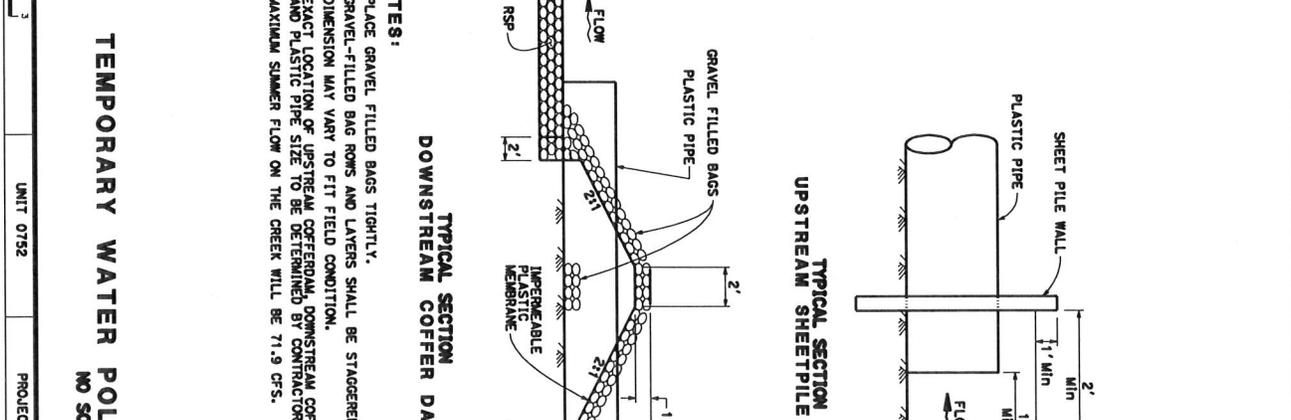
Temporary Creek Diversion Plan



APPROVED FOR TEMPORARY WATER POLLUTION CONTROL WORK ONLY

UNIT 0752

PROJECT NUMBER & PHASE 04120001161



- NOTES:**
1. PLACE GRAVEL FILLED BAGS TIGHTLY.
 2. GRAVEL-FILLED BAG ROWS AND LAYERS SHALL BE STAGGERED TO ELIMINATE GAPS.
 3. DIMENSION MAY VARY TO FIT FIELD CONDITION.
 4. EXACT LOCATION OF UPSTREAM COFFERDAM, DOWNSTREAM COFFERDAM, AND PLASTIC PIPE SIZE TO BE DETERMINED BY CONTRACTOR'S OPERATION.
 5. MAXIMUM SUMMER FLOW ON THE CREEK WILL BE 71.9 CFS.

Dist. COUNTY	ROUTE	TOTAL PROJECT LENGTH	SHEET TOTAL
04 SON	1	50,000.25'	10
			102

REGISTERED CIVIL ENGINEER	DATE
<i>[Signature]</i>	2-22-16

PLANS APPROVAL DATE	REGISTERED PROFESSIONAL ENGINEER
2-22-16	VIET HAM
	NO. 83092
	EXPIRES 02-20-18
	STATE OF CALIFORNIA

Summer Flow

Memorandum

*Flex your power!
Be energy efficient!*

Date: 04/04/2016

Project: HWY-1 Bridge Replacement at Americano Creek at Marin Sonoma County Border

Location: 04 - MRN,SON - 01; PM 50.1/50.5,0.0/0.2
EA: 04-209501

Subject: Summer Peak Flow Estimates of Americano River at HWY-1 Crossing in Marin and Sonoma County Border, East of Valley Ford in Sonoma County

1. Background

Americano Creek is a main tributary of Estero Americano Watershed draining into Bodega Bay. Americano Creek is about 7.6-mi long draining into the tidal estuary of Estero Americano at Valley Ford. Proposed HWY-1 bridge replacement site on Americano Creek is located east of Valley Ford, near Marin and Sonoma County border (See Figure-1).

Contractor is required to consider a reasonable risk associated with the creek diversion work in Americano Creek for placing the new footings. This study estimates peak summer flows of Americano Creek at the bridge replacement site. The period of interest for summer flows is from June 01 through October 15.

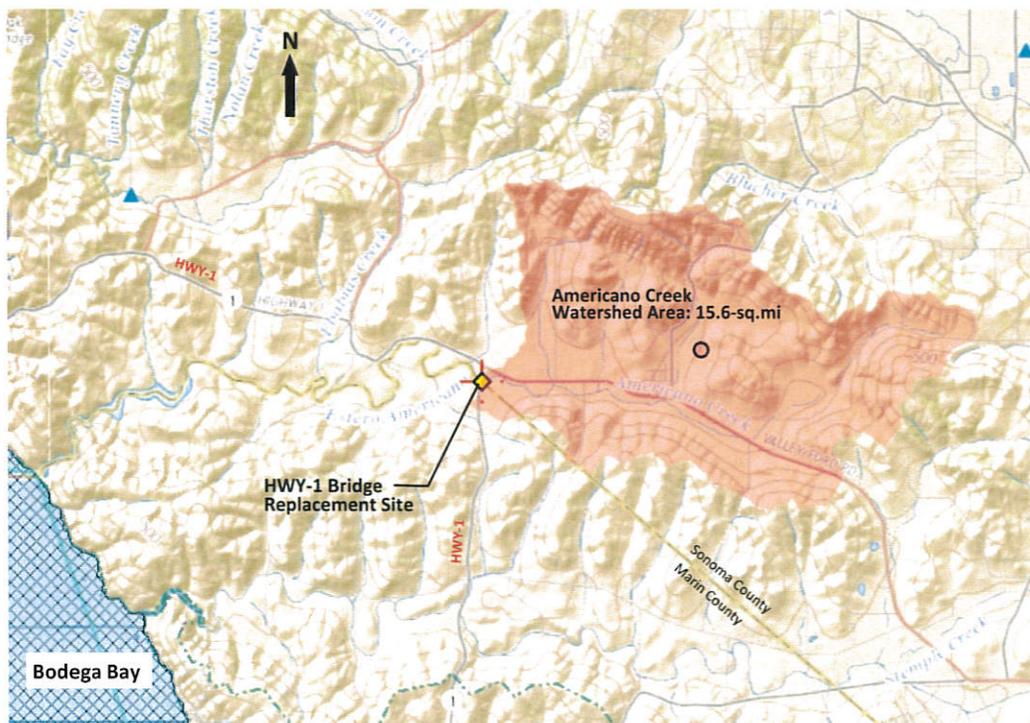


Figure-1: Watershed Map of Americano Creek at HWY-1 Bridge Replacement Site

2. Watershed Characteristics

Americano Creek is an ungaged creek which encompasses a watershed area of 15.6-sq.mi at the proposed bridge replacement site (See Figure-1 and Attachment-1). Tidal influence extends to about 4-mi upstream from the mouth on Estero Americano estuary at Bodega Bay, and bridge replacement site on Americano Creek is not under tidal influence.

Watershed Characteristics of the Americano Creek referred from (1) USGS's online tool Streamstats and (2) EPA's Stormwater Calculator are presented below in Table-1.

Table-1: Watershed Characteristics

Properties	Value
Mean Annual Precipitation	41.3-in
Average Hydrologic Soil Group	Type-B
SCS Curve Number (Pasture)	61
Impervious Surface Area	0.7%
Average Topographic Slope	5%
Length of Longest Flow Path	8-mi

3. Flow Data

Americano Creek is an ungaged creek, therefore a proxy stream gage of Laguna De Santa Rosa Creek is used to estimate the summer flows. USGS gage station 11465750 established in Laguna De Santa Rosa Creek has a similar watershed characteristics with Americano Creek watershed, which is located about 8-mi northeast from the bridge replacement site. USGS gage station 11465750 has a flow record from 11/19/1998 through 10/01/2007 for 15-min intervals (See Attachment-2).

4. Methodology

Flow record of Laguna De Santa Rosa Creek at USGS gage station 11465750 is tabulated and the annual summer peak flows are sorted for the year 1998 through 2007 using excel spread sheet. Watershed area of Laguna Santa Rosa Creek at USGS gage station 11465750 is 79.6-sq.mi. Flow record from the gage station is adjusted through a watershed area ratio as shown below to generate annual summer peak flow data at the bridge replacement site on Americano Creek with a watershed area of 15.6-sq.mi:

$$Q_{SA} = Q_N * (A_{SA}/A_N)$$

- Where,
- Q_{SA} : Ungaged Americano Creek flow at bridge replacement site
 - Q_N : Gaged flow of Laguna De Santa Rosa Creek at USGS gage Station 11465750
 - A_{SA} : Watershed area of Americano Creek at bridge replacement site
 - A_N : Watershed area of Laguna De Santa Rosa Creek at USGS gage Station 11465750

Next, a Log Pearson Type III frequency analysis is performed to estimate summer peaks of Americano Creek at the bridge replacement site for 2-yr and 5-yr return periods (See Attachment-3).

5. Results

Predicted 2- and 5-yr event summer peak flows of Americano Creek at HWY-1 bridge replacement site are listed below in Table-2:

Table-2: Summer Peak Flows

Return Period	Predicted Summer Peak Flow
2-yr	1.1-cfs
5-yr	2.9-cfs

Ungaged site in Americano Creek and the proxy USGS stream gage 11465750 are located in different watershed basins, ratio of their watershed areas exceeds 0.5 to 1.5, and their mean annual precipitations are different. Hence, following reports approved by the Government agencies were referred to validate the estimated summer peak flows:

- Based on the studies made by Marin County Watershed Program (See Attachment-4), and Gold Ridge Resource Conservation District (Ref.1), Americano Creek is ephemeral and generally dries up between late spring and fall.
- Water Plan Update from California Department of Water Resources (Ref.2) reports summer flows are often nonexistent in Americano Creek due to Mediterranean type of climate in Bodega Watershed basin (See Attachment-4).

6. Recommendation

The proxy stream has a longer channel length than Americano Creek at project site, which facilitates more storage. Hence, estimated 2- and 5-yr event summer peak flows of Americano Creek at HWY-1 bridge replacement site are expected to be larger than predicted, and suggested to increase by 50% as listed below in Table-3:

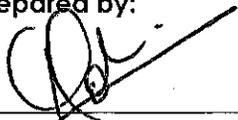
Table-3: Summer Peak Flows

Return Period	Recommended Summer Peak Flow
2-yr	1.7-cfs
5-yr	4.4-cfs

7. Reference:

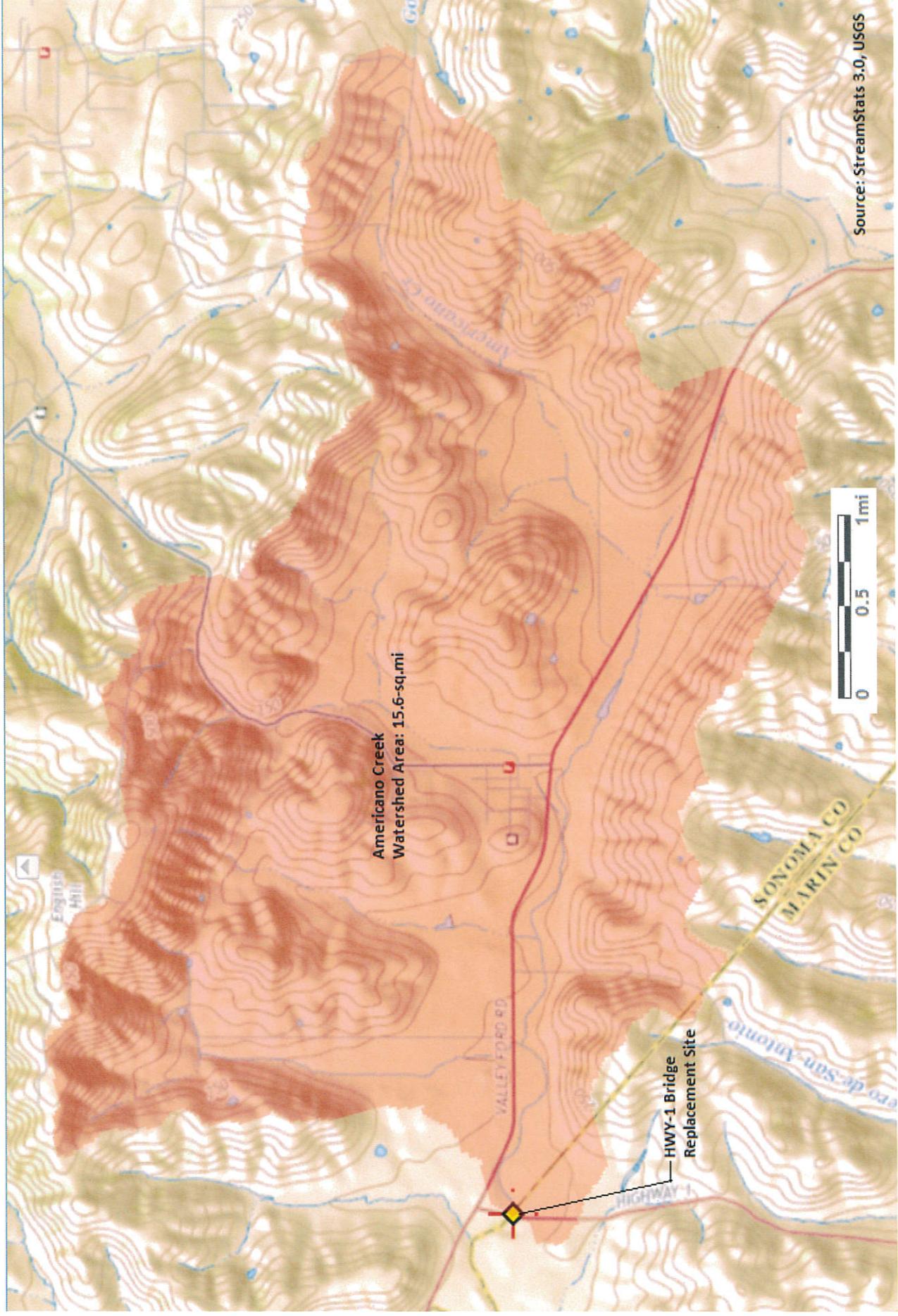
1. Gold Ridge Resource Conservation District (2007): The Estero Americano Watershed Management Plan Version 1, Gold Ridge Resource Conservation District, February 2007.
2. California Department of Water Resources (2013): California Water Plan Update 2103, North Coast Hydrologic Region, Vol. 2, Northern Region office, California Department of Water Resources, California, 2013.

Prepared by:



Robin L Amatya, PE, CFM
D4-Hydraulics

ATTACHMENT-1



Americano Creek
Watershed Area: 15.6-sq.mi

HWY-1 Bridge
Replacement Site

Source: StreamStats 3.0, USGS

Watershed Map of Americano Creek at HWY-1 Bridge Replacement Site

StreamStats Version 3.0

Basin Characteristics Ungaged Site Report

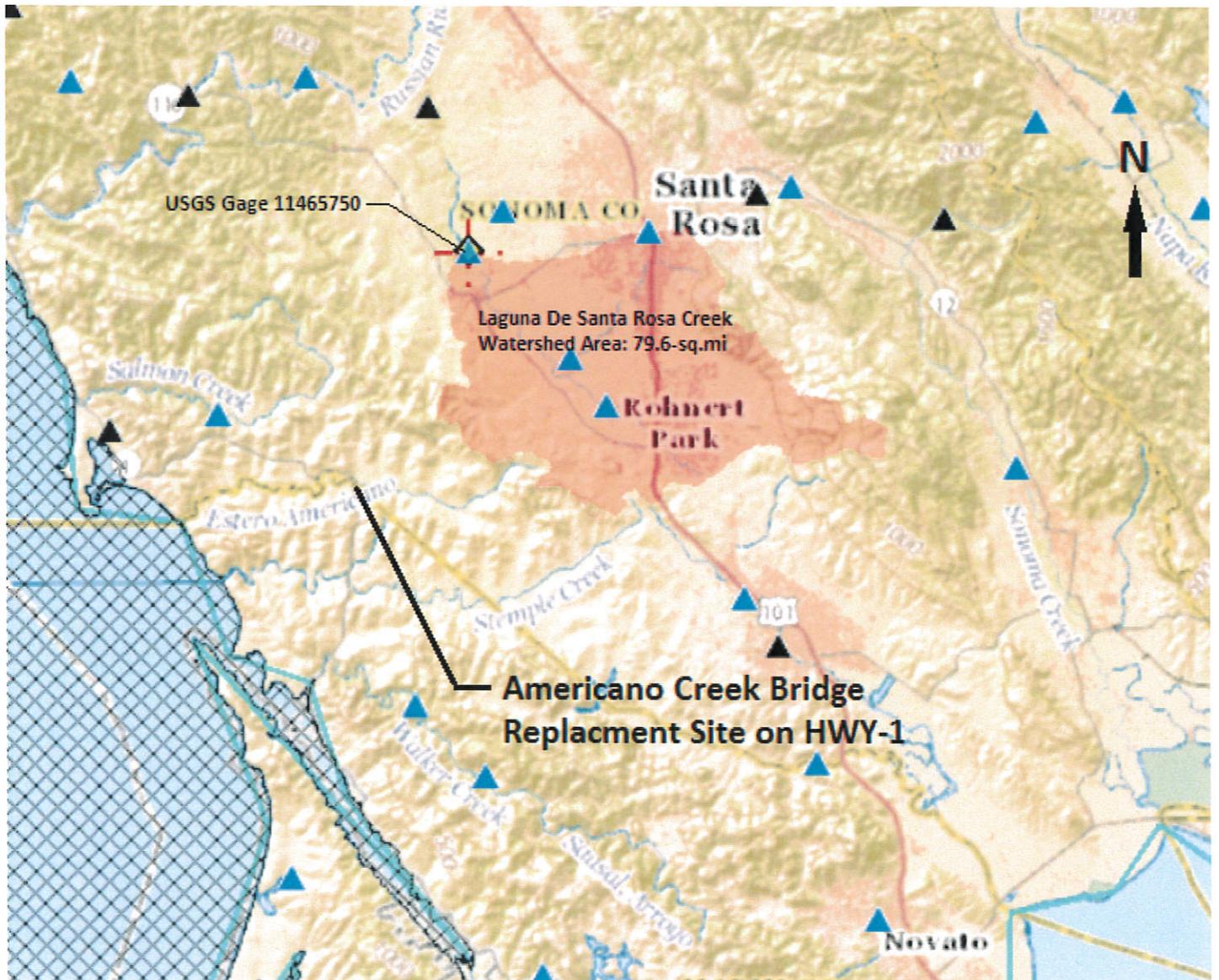
Date: Mon Feb 22, 2016 10:48:03 AM GMT-8
 Study Area: California
 NAD 1983 Latitude: 38.3134 (38 18 46)
 NAD 1983 Longitude: -122.8967 (-122 53 48)

Label	Value	Units	Definition
DRNAREA	15.6	square miles	Area that drains to a point on a stream
RELIEF	902	feet	Maximum - minimum elevation
ELEVMAX	923	feet	Maximum basin elevation
MINBELEV	21	feet	Minimum basin elevation
LAKEAREA	0	percent	Percentage of Lakes and Ponds
EL6000	0	percent	Percent of area above 6000 ft
CENTROIDX	-2294052.8	State plane coordinates	Basin centroid horizontal (x) location in state plane coordinates
CENTROIDY	2024806.3	State plane coordinates	Basin centroid vertical (y) location in state plane units
OUTLET ELEV	22	feet	Elevation of the stream outlet in thousands of feet above NAVD88.
BASINPERIM	26.8	miles	Perimeter of the drainage basin as defined in SIR 2004-5262
RELRELF	33.7	feet per mi	Basin relief divided by basin perimeter
ELEV	256	feet	Mean Basin Elevation
BSLDEM30M	14.8	percent	Mean basin slope computed from 30 m DEM
FOREST	1.9	percent	Percentage of area covered by forest
LC11IMP	0.7	percent	Percentage of impervious area determined from NLCD 2011 impervious dataset
PRECIP	41.3	inches	Mean Annual Precipitation
JANMAXTMP	55.85	degrees F	Mean Maximum January Temperature
JANMINTMP	37.69	degrees F	Mean Minimum January Temperature
ALTIND	0.21	thousand feet	Altitude Index
LC11DEV	4.9	percent	Percentage of land-use from NLCD 2011 classes 21-24
LFLENGTH	8	miles	Length of longest flow path

Accessibility | FOIA | Privacy | Policies and Notices
 U.S. Department of the Interior | U.S. Geological Survey
 URL: http://streamstatsags.cr.usgs.gov/v3_beta/BCreport.htm
 Page Contact Information: StreamStats Help
 Page Last Modified: 01/26/2016 08:44:09 (Web2)



ATTACHMENT-2



Watershed Map of Laguna De Santa Rosa at USGS Gage 11465750



[USGS Home](#)
[Contact USGS](#)
[Search USGS](#)

National Water Information System: Web Interface

[USGS Water Resources](#)

Data Category:
 Site Information

Geographic Area:
 United States

[GO](#)

Click to hideNews Bulletins

- **February 25, 2016**
 All data should be up to date.
- Try our new [Mobile-friendly water data site](#) from your mobile device!
- New improved user interface.
- [Full News](#)

USGS 11465750 LAGUNA DE SANTA ROSA C NR SEBASTOPOL CA

[Available data for this site](#) [SUMMARY OF ALL AVAILABLE DATA](#)

[GO](#)

Stream Site

DESCRIPTION:

Latitude 38°25'32", Longitude 122°49'41" NAD27
 Sonoma County, California, Hydrologic Unit 18010110
 Drainage area: 79.6 square miles
 Datum of gage: 0.00 feet above NAVD88.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Current / Historical Observations (availability statement)	2007-10-01	2016-02-29	
Daily Data			
Temperature, water, degrees Celsius	2006-10-06	2007-07-12	14
Discharge, cubic feet per second	1998-11-18	2016-02-28	6311
Suspended sediment concentration, milligrams per liter	2006-10-01	2007-04-30	212
Suspended sediment discharge, tons per day	2006-10-01	2007-04-30	212
Daily Statistics			
Discharge, cubic feet per second	1998-11-18	2015-11-24	6216
Suspended sediment concentration, milligrams per liter	2006-10-01	2007-04-30	212
Suspended sediment discharge, tons per day	2006-10-01	2007-04-30	212
Monthly Statistics			
Discharge, cubic feet per second	1998-11	2015-11	
Suspended sediment concentration, milligrams per liter	2006-10	2007-04	
Suspended sediment discharge, tons per day	2006-10	2007-04	
Annual Statistics			
Discharge, cubic feet per second	1999	2016	
Suspended sediment concentration, milligrams per liter	2007	2007	
Suspended sediment discharge, tons per day	2007	2007	
Peak streamflow	2000-02-13	2014-02-10	15
Field measurements	1998-11-06	2016-01-07	144
Field/Lab water-quality samples	2006-11-02	2009-04-01	33
Water-Year Summary	2005	2015	11
Additional Data Sources			
Instantaneous-Data Archive **offsite**	1998-11-19	2007-09-30	261568

OPERATION:

Record for this site is maintained by the USGS California Water Science Center

Email questions about this site to [California Water Science Center Water-Data Inquiries](#)

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Title: NWIS Site Information for USA: Site Inventory

URL: <http://nwis.waterdata.usgs.gov/nwis/inventory?>



Page Contact Information: [USGS Water Data Support Team](#)

Page Last Modified: 2016-02-29 17:38:21 EST

0.45 0.41 nadww01

ATTACHMENT-3

Annual Summer Peak Flow at Americano Creek, HWY-1 Bridge Replacement Site

Year	Laguna De Santa Rosa Creek, USGS Gage# 11465750	Americano Creek, HWY-1 Bridge Replacement Site
	Watershed Area (A ₁): 79.6-sq.mi	Watershed Area (A ₂): 15.6-sq.mi
	Max Summer Flow (Q ₁), (cfs)	Max Summer Flow (Q ₂)=(A ₂ /A ₁)*Q ₁ (cfs)
1999	7.7	1.5
2000	7.5	1.5
2001	2	0.4
2002	6.3	1.2
2003	7.2	1.4
2004	1.2	0.2
2005	47	9.2
2006	9.7	1.9
2007	2.6	0.5

**Frequency Analysis for Summer Flow (June 1st thru October 15th) using Log-Pearson Type III Analysis
Americano Creek, HWY-1 Bridge Replacment Site**

Date: 03/15/2016

Rank	Year	Summer Peaks, Q(cfs)	log Q(cfs)	(log Q - avg(logQ))^2	(log Q - avg(logQ))^3	Return Period, Tr = [(n+1)/m]	Exceedence Probability (1/Tr)
1	2005	9.2	0.96	0.83	0.75	10	0.1
2	2006	1.9	0.28	0.05	0.01	5	0.2
3	1999	1.5	0.18	0.02	0	3.33	0.3003
4	2000	1.5	0.18	0.02	0	2.5	0.4
5	2003	1.4	0.15	0.01	0	2	0.5
6	2002	1.2	0.08	0	0	1.67	0.5988
7	2007	0.5	-0.3	0.12	-0.04	1.43	0.6993
8	2001	0.4	-0.4	0.2	-0.09	1.25	0.8
9	2004	0.2	-0.7	0.56	-0.42	1.11	0.9009

Average: 1.98 **Average:** 0.05 **Sum:** 1.81 **Sum:** 0.21

Variance: 0.2263
Standard Deviation: 0.4757
Skew Coefficient, K: 0.3136

Return Period, Tr (yr)	K(0.3)	K(0.4)	slope	K(0.3136)	Q (cfs)
2	-0.050	-0.066	-0.16	-0.052	1.1
5	0.824	0.816	0.08	0.823	2.8

ATTACHMENT-4

Most Visited [📄](#) Getting Started [📄](#) From Internet Explorer

- [Bolinas Lagoon](#)
- [Estero Americano](#)
- [Gallinas Creek](#)
- [Miller Creek](#)
- [Novato Creek](#)
- [Point Reyes National Seashore Creeks](#)
- [Richardson Bay](#)
- [Ross Valley](#)
- [Rush Creek](#)
- [San Antonio Creek](#)
- [San Rafael Creek](#)
- [Southern Coastal Creeks](#)
- [Stemple Creek](#)
- [Tomales Bay](#)

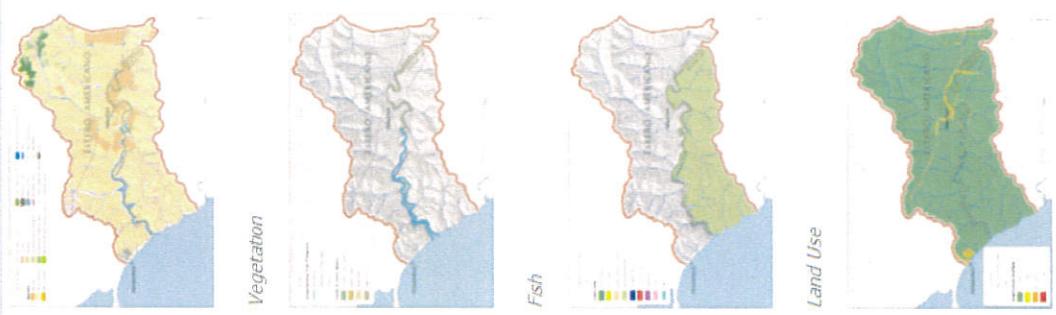


Watershed Overview

The Estero Americano is a coastal estuary at the base of Americano Creek; the watershed area is 49 square miles. It forms a portion of the northern boundary between Marin and Sonoma counties where it drains into Bodega Bay. In some years, a seasonal sand bar at the mouth restricts tidal exchange. Periods of hypersalinity have been recorded in the Estero. When the mouth is open, the tidal influence ranges up to 4 miles upstream. Americano Creek, the sole tributary of the Estero, is ephemeral and generally dries up for 6 months between late spring and fall.

Watershed History

Watershed Today



Imperviousness

Source: California Water Plan Update 2013, North Coast Hydrologic Region, Vol. 2, Department of Water Resources - California.

110 miles long and flows from north of Ukiah southward through Redwood Valley (Mendocino County) to its confluence with Mark West Creek (Mirabel Park), where it turns west, passes through the Coast Ranges, and empties into the Pacific Ocean approximately 20 miles west of Santa Rosa. The summer climate is moist and cool near the coast with temperatures increasing in the valley areas, which are isolated from the cooling coastal influence. During winter, average rainfall ranges from 30 to 80 inches, depending on locale.

The reservoirs that provide flood protection and water supply storage include Lake Sonoma (Warm Springs Dam) located at the confluence of Warm Springs Creek and Dry Creek west of Healdsburg and Lake Mendocino (Coyote Valley Dam) on the East Fork Russian River near Ukiah. A diversion from the Eel River via PG&E's Potter Valley Project (Van Arsdale Reservoir, Cape Horn Dam) for the purpose of power production provides benefit to the overall water storage in Lake Mendocino. The Russian River watershed supplies drinking water for over 600,000 people.

Lake Sonoma and Lake Mendocino and their associated facilities (collectively referred to as the Russian River Project) are operated in accordance with criteria established by SWRCB's Decision 1610. Decision 1610 established the most recent minimum instream flow requirements for Dry Creek and the Russian River. Flood releases from both reservoirs are controlled by the U.S. Army Corps of Engineers (USACE).

Sonoma County Water Agency (SCWA) makes no diversions from the Russian River between Lake Mendocino and the Russian River's confluence with Dry Creek, but it does authorize diversions through other SCWA water right permits. In addition, numerous domestic, agricultural, and municipal diversions occur on that portion of the Russian River; and SCWA maintains minimum instream flows regardless of the extent of diversions by others.

The Russian River watershed is primarily an agricultural area with the greatest emphasis on vineyard and orchard crops. Water is diverted from the Russian River and its tributaries in both Mendocino and Sonoma counties for extensive agricultural and domestic purposes. Major orchard crops include prunes, pears, and apples; other crops such as cherries and walnuts are also produced. Besides agriculture, there is a growing trend toward light industry and commercial development and a significant telecommunications industry within the region. The production and processing of timber, agricultural and animal products, gravel removal and processing, energy production and miscellaneous light manufacturing operations are additional industrial activities in the watershed. The Russian River watershed also has developed an international reputation for the production of premium wines, contributing to a strong tourism industry within the region.

Bodega Watershed

The Bodega watershed contains streams with headwaters in the Coast Ranges entering the Pacific Ocean south of the Russian River. Salmon, Americano, and Stemple creeks and their associated estuaries are the main water bodies within this watershed. The terrain is relatively steep and erodible and is sensitive to disturbance. Cooler temperatures and relatively high winter rainfall due to coastal influences typify the climate of the Bodega watershed. **Because of the Mediterranean climate, summertime flows are often nonexistent in Americano and Stemple creeks; Salmon Creek flow is low but sustained.** Each of these subwatersheds have estuary areas; however, the Estero Americano (Americano Creek) and the Estero de San Antonio

Temporary Water Pollution Control Quantity

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans WATER QUALITY
 FUNCTIONAL SUPERVISOR
 KAMRAN NAKHJIRI
 CALCULATED BY
 DESIGNED BY
 CHECKED BY
 KAMRAN NAKHJIRI
 REVISED BY
 DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04				1	1

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



TEMPORARY WATER POLLUTION CONTROL QUANTITIES

ITEM	UNIT	STATION LIMITS	QUANTITY
PORTABLE CONCRETE WASHOUT	EA	L17+25, L21+50, R20+50, R27.25	4
TEMPORARY FIBER ROLL	LF	L9+50 to L17+25, L21+50 to L31+50, R9+50 to R20+50, R 27+25 to R31+50	5000
TEMPORARY PLASTIC COVER	SOYD	L9+50 to L17+25, L21+50 to L31+50, R9+50 to R20+50, R 27+25 to R31+50	2500
TEMPORARY HYDRAULIC MULCH (BFM)	SOYD	L9+50 to L17+25, L21+50 to L31+50, R9+50 to R20+50, R27+25 to R31+50	2500
TEMPORARY SILT FENCE	LF	R9+00 to R23+25, R25+90 to R32+00, L9+00 to L23+25, L25+90 to L32+00	5000
TEMPORARY CONSTRUCTION ENTRANCE	EA	R9+00, R32+00, L9+00, L32+00	4

TEMPORARY WATER POLLUTION CONTROL QUANTITIES

WPCQ-1

Permits

North Coast Regional Water Quality Control Board

April 21, 2016

In the Matter of Water Quality Certification

for the

State Route 1 Estero Americano Bridge Replacement Project 38.313442, -122.897390¹

WDID No. 1B15135WNSO, ECM PIN CW-818531
Caltrans EA No. 04-209500, EFIS No. 04-1200-0116

APPLICANT: California Department of Transportation
RECEIVING WATER: Americano Creek
HYDROLOGIC AREA: Estero Americano, Hydrologic Unit No. 115.30
COUNTY: Marin and Sonoma
FILE NAME: CDOT MRN-1-PM 50.1/50.5 and SON-1-PM 0.0/0.1

FINDINGS BY THE EXECUTIVE OFFICER:

1. On October 1, 2015, the North Coast Regional Water Quality Control Board (Regional Water Board) received an application from the California Department of Transportation (Caltrans), requesting Federal Clean Water Act, section 401, Water Quality Certification (certification) for activities related to the proposed State Route 1 Estero Americano Bridge Replacement Project (Project).
2. **Public Notice:** The Regional Water Board provided public notice of the application pursuant to title 23, California Code of Regulations, section 3858 on October 10, 2015,

¹ WGS84 datum

and posted information describing the Project on the Regional Water Board's website. No comments were received.

3. **Receiving Waters:** The proposed Project would cause disturbances to tributaries of Americano Creek (Pacific Ocean, Estero Americano Hydrologic Sub Area).
4. **Project Description:** The purpose of the Project is to maintain the integrity of the roadway and provide flooding relief by replacing the existing Estero Americano Bridge over Americano Creek on State Route 1 (SR 1) in Marin and Sonoma Counties. The existing Estero Americano Bridge was constructed in 1925, is structurally deficient, and subject to periodic flooding. The Project limits extend between Marin SR 1 post-miles (PM) 50.1 and 50.5, and Sonoma PM 0.0 and 0.1.

The scope of the proposed work involves:

- Replace the existing 146-foot-long bridge in-kind with a 266-foot-long cast-in-place slab bridge. The new bridge profile would be six feet higher at its highest point over Americano Creek. The new bridge would also be constructed slightly to the east of its current alignment;
 - Widening and realignment of the existing roadway. The existing roadway consists of ten-foot to eleven-foot lanes with zero-foot to one-foot shoulders; the new roadway would have twelve-foot lanes with six-foot shoulders through the Project limits;
 - Construction of retaining walls. Four retaining walls would be constructed, extending along the roadway from each bridge quadrant. Retaining walls would be between 100 feet and 575 feet long;
 - Construction of a temporary creek diversion during construction;
 - Removal of vegetation through the Project area, beginning the season prior to construction; and
 - Construction of temporary construction access roads up to 15-foot-wide along the east and west sides of SR 1. During the second construction season, the temporary construction access roads would only be constructed on the west sides of SR 1.
5. **Construction Timing:** The Project is expected to require 2 years of construction. The Project is proposed to begin in April 2016, and be completed in April 2018. Work within waters will be conducted in the dry season (June 15- October 15).
 6. **Project Impacts:** Project implementation would result in approximately 2,400 linear feet (0.262 acres) of permanent impacts to jurisdictional roadside wetlands due to placement of fill material for the new retaining walls and roadway embankment. Project implementation would result in approximately 1,845 linear feet (0.144 acres) of temporary impacts to jurisdictional wetlands as a result of construction access and staging. Project implementation would result in approximately 75 linear feet (0.29 acres) of temporary impacts to Americano Creek as a result of water diversion for

construction access. Project implementation would also result in approximately 1.14 acres of permanent impacts to riparian vegetation due to construction access and bridge and embankment construction.

7. **Mitigation for Project Impacts:** Caltrans shall restore approximately 1.6 acres of wetlands habitat and 3.3 acres of riparian trees, both on and off the Project site. 1.1 acres of riparian trees shall be planted within the Project limits, and 0.65 acres of seasonal wetlands shall also be created within the Project limits. 2.2 acres of riparian establishment planting shall occur off-site at the Estero Americano Coastal Preserve. 0.95 acres of seasonal wetlands shall be created off-site at the Estero Americano Coastal Preserve.
8. **Post-Construction Storm Water:** Project implementation would result in approximately 0.35 acres of new and 1 acre of reworked impervious area. To control roadway pollutants, post-construction, Caltrans would install one biofiltration swale to treat no less than 1.35 acres of impervious surface runoff.
9. **Disturbed Soil Area:** Project implementation would result in greater than one acre of disturbed soil area. Caltrans shall apply for coverage under the National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ) and prepare a Stormwater Pollution Prevention Plan detailing best management practices (BMPs) to control pollution from the Project area during construction. All temporarily disturbed areas within the Project area shall be appropriately stabilized and/or replanted with appropriate native vegetation.
10. **Utility Relocations:** Utility relocations affecting jurisdictional waters are not proposed for this Project.
11. **Other Agency Actions:** Caltrans has applied to the U.S. Army Corps of Engineers for either a Nationwide or individual Clean Water Act section 404 permit. Caltrans has applied for a Section 1600 Streambed Alteration Agreement from the California Department of Fish and Wildlife. Caltrans received a Biological Opinion from the United States Fish and Wildlife Service (USFWS) dated December 1, 2014, that discusses the Project effects on Contra Costa goldfields, California red-legged frog, Myrtle's silverspot butterfly, tidewater goby, and California freshwater shrimp. The USFWS found that there is no designated critical habitat for listed species within the Project area. Caltrans has also applied to the California Coastal Commission for a Coastal Development Permit.
12. **CEQA Compliance:** On December 15, 2014, Caltrans signed a Notice of Determination approving a Negative Declaration for the Project (State Clearinghouse No. 20114102047) in order to comply with the California Environmental Quality Act.

13. Total Maximum Daily Load: The Estero Americano is identified as impaired on the Clean Water Act Section 303(d) list. The Estero Americano is listed as impaired for nutrients and sedimentation/siltation. At present, total maximum daily loads (TMDLs) have not been established for this water body. If TMDLs are established and implementation plans are adopted for this watershed prior to the expiration date of this Order, the Regional Water Board may revise the provisions of this Order to address actions identified in such action plans.

14. Antidegradation Policy: The federal antidegradation policy requires that State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California’s antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board’s Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. This certification is consistent with applicable federal and State antidegradation policies, as it does not authorize the discharge of increased concentrations of pollutants or increased volumes of treated wastewater, and does not otherwise authorize degradation of the waters affected by this Project.

15. This discharge is also regulated under State Water Resources Control Board Order No. 2003-0017-DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification," which requires compliance with all conditions of this certification. Order No. 2003-0017-DWQ can be found here: http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0017.pdf.

Receiving Water:	Americano Creek (Pacific Ocean, Bodega, 115.30)	
Filled and/or Excavated Areas:	Permanent – jurisdictional waters	2,400 linear feet (0.262 acres)
	Temporary – jurisdictional waters	1,845 linear feet (0.144 acres)
Dredge Volume:	253 cubic yards	
Latitude/Longitude:	38.313442, -122.897390	

Accordingly, based on its independent review of the record, the Regional Water Board certifies that the State Route 1 Estero Americano Bridge Replacement Project (WDID No. 1B15135WNSO), as described in the application will comply with sections 301, 302, 303, 306 and 307 of the Clean Water Act, and with applicable provisions of state law, provided that Caltrans complies with the following terms and conditions:

All conditions of this certification apply to Caltrans (and all its employees) and all contractors (and their employees), sub-contractors (and their employees), and any other entity or agency that performs activities or work on the Project as related to this Water Quality Certification.

Project-Specific Conditions

1. To compensate for the permanent impacts to wetlands and riparian areas, Caltrans shall establish 2.2 acres of riparian plantings and 0.95 acres of seasonal wetlands off-site at the Estero Americano Coastal Preserve, as described in the *Estero Americano Creek Bridge Replacement Wetland and Riparian Habitat and Mitigation Monitoring Plan*, dated March 2016. A total of 1.22 acres of riparian willows shall be replanted on-site from salvaged willow tree cuttings collected onsite prior to construction. A total of 0.36 acres of wetlands shall be established in areas adjacent to permanent wetlands impacts. In addition, 0.29 acre of wetlands shall be restored in areas where temporary impacts occurred, for a total of 0.65 acre of wetlands re-created onsite.
2. Caltrans shall install a bioswale onsite to treat no less than 1.35 acres of impervious surface runoff. The bioswale shall be amended with imported biofiltration soil incorporated to a depth of 4 feet. The bioswale shall be vegetated using native grass seed. Caltrans shall submit photographs of completed and fully vegetated bioswale no later than May 1, 2018.

Project-Specific Conditions Requiring Reports

3. Caltrans shall implement the proposed *Estero Americano Creek Bridge Replacement Wetland and Riparian Habitat and Mitigation Monitoring Plan*, dated March 2016, or any successive document approved by Regional Water Board staff. Caltrans shall submit annual monitoring reports, no later than January 31 following the respective monitoring year. Riparian tree plantings must meet 85% survivorship and not be reliant on supplemental irrigation for the final two years of the monitoring period in order to be deemed successful. Post-project monitoring reports shall include the following information:
 - i) A summary of findings including the condition and survivorship of riparian plantings, and whether the success criteria is being met;
 - ii) Photographic evidence that confirms survivorship of riparian plantings; and
 - iii) Proposed corrective measures as needed (requires Regional Water Board approval).
4. The Regional Water Board shall be notified in writing (e-mail is acceptable) at least five working days prior to commencement of ground disturbing activities for each construction season.

Standard Conditions

5. Herbicides and other pesticides shall not be used within the Project limits. If Caltrans has a compelling case as to why pesticides should be used, then a request for pesticide use and a BMP plan may be submitted to the Regional Water Board staff for review and acceptance.
6. All Project activities and BMPs shall be implemented according to the submitted application package and the findings and conditions of this certification. Subsequent changes to the Project that could significantly impact water quality shall first be submitted to Regional Water Board staff for prior review, consideration, and written concurrence. If the Regional Water Board is not notified of an alteration to the Project that results in an impact to water quality, it will be considered a violation of this certification, and Caltrans may be subject to Regional Water Board enforcement actions.
7. All conditions required by this certification shall be included in the Contract Documents prepared by Caltrans for the contractor. In addition, Caltrans shall require compliance with all conditions included in this certification in the bid contract for this Project.
8. Caltrans is prohibited from discharging waste to waters of the State, unless explicitly authorized by this certification. For example, no debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or concrete washings, welding slag, oil or petroleum products, or other organic or earthen material from any construction or associated activity of whatever nature, shall be allowed to enter into State waters.
9. Except for temporary stockpiling of waste generated during demolition operations ("temporary" in this instance means generated and removed during the same working day,) waste materials shall not be placed in a manner where the materials may be transported into waters of the State. Waste materials shall not be placed within 100 linear feet of State waters. Exceptions to the 100-foot limit may be granted on a case-by-case basis provided Caltrans first submits a proposal in writing that is found acceptable by Regional Water Board staff.
10. Caltrans is liable and responsible for the proper disposal, reuse, and/or recycling of all Project-generated waste in compliance with applicable State and Federal laws and regulations, and as described in Caltrans 2010 Standard Specifications 13-4.03D, Waste Management. Additionally, when handling, transporting, disposing, reusing, and/or recycling Project-generated waste, Caltrans and their contractors shall:
 - i) Provide the Regional Water Board with a copy of the Solid Waste Disposal and Recycling Report prepared for Caltrans by the contractor per Caltrans 2010 Standard Specification 14-10.02A(1), Submittals. These reports shall be provided not later than January 31 for each year

Standard Conditions (continued)

work is performed during the previous calendar year. A copy of the final Solid Waste Disposal and Recycling Report shall be submitted to the Regional Water Board within 30 days after being received by Caltrans from the contractor.

- ii) For waste other than solid waste, obtain evidence that waste has been appropriately disposed, reused, and/or recycled. Evidence shall include type and quantity of waste and may include, but not be limited to, property owner agreements, permits, licenses, and environmental clearances. Evidence shall be provided to the Regional Water Board upon request; and
 - iii) For waste other than solid waste, ensure the Resident Engineer has given written permission for disposal, reuse, and/or recycling, prior to the actual disposal, reuse, and/or recycling.
11. Asphalt-concrete grindings shall not be placed in any location where they may, at any time, be directly exposed to surface waters or seasonally high ground water, except asphalt-concrete grindings may be re-used and incorporated into hot mix asphalt products or encapsulated within the roadway structural section.
12. Caltrans and their contractors shall comply with the activity restrictions detailed in Caltrans 2010 Standard Specifications 13-4.03C(1). In addition, fueling, maintenance, storage and staging of vehicles and equipment shall be prohibited within waters of the State (e.g., gravel bars, seeps, ephemeral streams) and riparian areas.
13. Fueling, maintenance, and/or staging of individual equipment types within waters of the State or riparian areas may be authorized if Caltrans first prepares a plan for review and approval by Regional Water Board staff that:
- i) Identifies the specific piece of machinery that may require fueling, maintenance, and/or staging within waters of the State or riparian areas;
 - ii) Provides justification for the need to refuel, maintain, or stage within State waters or riparian areas. The justification shall describe why conducting the activity outside of jurisdictional waters is infeasible; and
 - iii) Includes a narrative of specific BMPs that shall be employed to prevent discharges to State waters and riparian areas;
14. Caltrans shall not use leaking vehicles or equipment within State waters or riparian areas.
15. Only 100-percent biodegradable erosion and sediment control products that will not

Standard Conditions (continued)

entrap or harm wildlife shall be used. Photodegradable synthetic products are not considered biodegradable. If Caltrans finds that erosion control netting or products have entrapped or harmed wildlife, personnel shall remove the netting or product and replace it with wildlife-friendly biodegradable products. This condition does not prohibit the use of plastic sheeting used in water diversion or dewatering activities. Caltrans shall request approval from the Regional Water Board if an exception to this requirement is needed for a specific location.

16. Work in flowing or standing surface waters, unless otherwise proposed in the project description and approved by the Regional Water Board, is prohibited.
17. Non-stormwater discharges are prohibited unless the discharge is first approved by the Regional Water Board and in compliance with the Basin Plan. If dewatering of groundwater is necessary, then Caltrans shall use a method of water disposal other than disposal to ground or surface waters, such as land disposal. Groundwater disposed of to land shall not enter State waters. Alternatively, Caltrans may apply for coverage under the Low Threat Discharge Permit or an individual National Pollutant Discharge Elimination System (NPDES) Permit. If Caltrans applies for coverage under either of these permits, then discharge is prohibited until Caltrans has received notification of coverage under the respective permit.
18. Gravel bags used within State waters shall:
 - i) Comply with Caltrans 2010 Standard Specifications sections 13-5.02G and 88-1.02F;
 - ii) Be immediately removed and replaced if the bags have developed or are developing holes or tears; and
 - iii) Be filled only with clean washed gravel.

Exceptions to these criteria are subject to the review and acceptance of Regional Water Board staff.

19. This certification does not authorize drafting of surface waters.
20. Caltrans shall provide access to the Project construction site upon request by Regional Water Board staff.
21. Initial water pollution control training described in Caltrans 2010 Standard Specifications 13-1.01D(2), Training, shall apply to all Caltrans employees, contractors, and sub-contractors. Initial water pollution control training topics shall include Regional Water Board 401 certification and construction general permit requirements, identification of state waters and riparian areas, and violation avoidance and discharge reporting procedures.

Standard Conditions (continued)

22. Caltrans shall maintain logs of all Caltrans staff, contractors, and sub-contractors trained pursuant to the Caltrans 2010 Standard Specifications 13-1.01D(2). The logs shall include the names of trainees, training dates, and summary of the scope of training. Caltrans shall provide evidence of this documentation upon the request of the Regional Water Board.
23. If an unauthorized discharge to surface waters (including wetlands, rivers or streams) occurs, or any other threat to water quality arises as a result of Project implementation, the associated Project activities shall cease immediately until the threat to water quality is otherwise abated. If there is a discharge to State waters, the Regional Water Board shall be notified no more than 24 hours after the discharge occurs.
24. Uncured concrete shall not be exposed to State waters or surface waters that may discharge to State waters. Concrete sealants may be applied to the concrete surface where difficulty in excluding flow for a long period may occur. If concrete sealant is used, water shall be excluded from the site until the sealant is cured. If groundwater comes into contact with fresh concrete, it shall be prevented from flowing towards surface water.
25. Ground and surface water that has come into contact with fresh concrete, and all other wastewater, shall not be discharged to State waters or to a location where it may discharge to State waters; the wastewater shall be collected and re-used or disposed of in a manner approved by the Regional Water Board.
26. All imported fill material shall be clean and free of pollutants. All fill material shall be imported from a source that has the appropriate environmental clearances and permits. The reuse of low-level contaminated solids as fill on-site shall be performed in accordance with all State and Federal policies and established guidelines and must be submitted to the Regional Water Board for review and consideration of acceptance.
27. Caltrans shall provide a copy of this certification and State Water Resources Control Board (SWRCB) Order No. 2003-0017-DWQ (web link referenced below) to the contractor and all subcontractors conducting the work, and require that copies remain in their possession at the work site. Caltrans shall be responsible for work conducted by its contractor and subcontractors.
28. The validity of this certification is conditioned upon total payment of any fee required under title 23, California Code of Regulations, section 3833. The total application fee is \$4,853. The Regional Water Board received \$4,853 from Caltrans on October 1, 2015.
29. This certification will be subject to annual billing during the construction phase ("Annual Active Discharge Fee") and during the monitoring phase of the Project

Standard Conditions (continued)

(“Annual Post Discharge Monitoring Fee”), per the current fee schedule, which can be found on our website:

http://www.swrcb.ca.gov/northcoast/water_issues/programs/water_quality_certification.shtml. These fees will be automatically invoiced to Caltrans.

30. Caltrans shall notify the Regional Water Board upon Project construction completion to request termination of the Annual Active Discharge Fee and to receive a “Notice of Completion of Discharges Letter.” If the Project is subject to the Annual Post Discharge Monitoring Fee, then Caltrans shall also notify the Regional Water Board at the end of the monitoring period to request termination of the fee and receive a “Notice of Project Complete Letter.” Caltrans may be required to submit completion reports at the end of each of these phases. Regional Water Board staff may request site visits at the end of each Project phase to confirm Project status and compliance with this certification.
31. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to title 23, California Code of Regulations, section 3855, subdivision (b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.
32. In the event of any violation or threatened violation of the conditions of this certification, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under applicable state or federal law. For the purposes of section 401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this certification. In response to a suspected violation of any condition of this certification, the State Water Board may require the holder of any federal permit or license subject to this certification to furnish, under penalty of perjury, any technical or monitoring reports the State Water Board deems appropriate, provided that the burden, including costs, of the reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In response to any violation of the conditions of this certification, the Regional Water Board may add to or modify the conditions of this certification as appropriate to ensure compliance.
33. This certification action is subject to modification or revocation upon administrative or judicial review; including review and amendment pursuant to Water Code section 13330 and title 23, California Code of Regulations, section 3867.

Standard Conditions (continued)

34. In the event of any change in control of ownership of land presently owned or controlled by Caltrans, Caltrans shall notify the successor-in-interest of the existence of this certification by letter and shall forward a copy of the letter to the following email address: NorthCoast@waterboards.ca.gov.

The successor-in-interest shall e-mail the Regional Water Board Executive Officer at: NorthCoast@waterboards.ca.gov to request authorization to discharge dredged or fill material under this certification. The request must contain the following:

- i) Effective date of ownership change;
- ii) Requesting entity's full legal name;
- iii) The state of incorporation, if a corporation;
- iv) The address and phone number of contact person; and
- v) A description of any changes to the project or confirmation that the successor-in-interest intends to implement the project as described in this certification.

35. Except as may be modified by any preceding conditions, all certification actions are contingent on:

- i) The discharge being limited, and all proposed revegetation, avoidance, minimization, and mitigation measures being completed, in strict compliance with Caltrans's project description and CEQA documentation, as approved herein;
- ii) Caltrans shall construct the Project in accordance with the project described in the application and the findings above; and
- iii) Compliance with all applicable water quality requirements and water quality control plans including the requirements of the Water Quality Control Plan for the North Coast Region (Basin Plan), and amendments thereto.

36. Any change in the design or implementation of the Project that would have a significant or material effect on the findings, conclusions, or conditions of this certification must be submitted to the Executive Officer of the Regional Water Board for prior review, consideration, and written concurrence. If the Regional Water Board is not notified of a significant alteration to the project, it will be considered a violation of this certification, and Caltrans may be subject to Regional Water Board enforcement actions.

37. The authorization of this certification for any dredge and fill activities expires five years from the date of this certification. Conditions and monitoring requirements outlined in this certification are not subject to the expiration date outlined above, and remain in full effect and are enforceable.

Conditions 3 and 4 are requirements for information and reports. Any requirement for a report made as a condition to this certification is a formal requirement pursuant to California Water Code section 13267, and failure or refusal to provide, or falsification of such required report is subject to civil liability as described in California Water Code, Section 13268.

The Regional Water Board may add to or modify the conditions of this certification, as appropriate, to implement any new or revised water quality standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act or section 303 of the Clean Water Act.

Please contact our staff Environmental Scientist, Brandon Stevens at (707) 576-2377, or via e-mail, at Brandon.Stevens@waterboards.ca.gov, if you have any questions.

Matthias St. John
Executive Officer

160421_BDS_dp_CDOT_HWY1_EsteroAmericano_401

Original to: Mr. Wajahat Nyaz, Caltrans, District 4, 111 Grand Ave. Oakland, CA 94612
Wajahat.Nyaz@dot.ca.gov

cc: Jim Mazza, U.S. Army Corps of Engineers James.C.Mazza@usace.army.mil
Laurie Koteen, California Coastal Commission Laurie.Koteen@coastal.ca.gov
State Water Resources Control Board Stateboard401@waterboards.ca.gov
Environmental Protection Agency, Region 9 R9-WTR8-Mailbox@epa.gov
Christopher Pincetich, Caltrans Christopher.Pincetich@dot.ca.gov

North Coast Regional Water Quality Control Board

May 9, 2016

California Department of Transportation
Attn: Mr. Wajahat Nyaz
111 Grand Ave.
Oakland, CA 94612

Dear Mr. Nyaz:

Subject: Amendment to the Federal Clean Water Act, Section 401, Water Quality Certification for the Estero Americano Bridge Replacement Project

Files: CDOT State Route 1 Estero Americano Bridge Replacement Project
ECM PIN CW-818531, WDID No. 1B15135WNSO
Caltrans EA No. 04-209500

On May, 2, 2016, we received your email requesting an amendment to the April, 21, 2016, Federal Clean Water Act, Section 401, Water Quality Certification (certification) for the Estero Americano Bridge Replacement Project (Project).

In response to your request, this letter serves as an amendment to Finding 5 and Project-Specific Condition 2 of the certification. Finding 5 and Condition 2 have been amended to adjust for construction timing and mitigation completion. The certification is hereby amended as described below. Additions and deletions to the original certification are represented by underlined and strikethrough text, respectively.

Finding 5: The Project is expected to require 2 years of construction. The Project is proposed to begin in ~~April 2016~~May 2016, and be completed in ~~April 2018~~November 2018. Work within waters will be conducted in the dry season (June 15- October 15).

Condition 2: Caltrans shall install a bioswale onsite to treat no less than 1.35 acres of impervious surface runoff. The bioswale shall be amended with imported biofiltration soil incorporated to a depth of 4 feet. The bioswale shall be vegetated using native grass seed. Caltrans shall submit photographs of

completed and fully vegetated bioswale no later than ~~May 1~~December 1,
2018.

I hereby issue an amendment to the project description in Finding 5 and Condition 2 in the Conditions of the certification for the Estero Americano Bridge Replacement Project (WDID No. 1B15135WNSO) certifying that the remainder of the Water Quality Certification sections of the April, 21, 2016, Order are still valid.

If you have any questions or comments, please contact Brandon Stevens at (707) 576-2377 or at Brandon.Stevens@waterboards.ca.gov.

Sincerely,

Matthias St. John
Executive Officer

160509_BDS_dp_CDOT_HWY1_EsterAmericano_401Amend

Letter 1

STATE OF CALIFORNIA

EDMUND G. BROWN JR., Governor

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202



Established in 1938

JENNIFER LUCCHESI, Executive Officer
(916) 574-1800 Fax (916) 574-1810
California Relay Service TDD Phone 1-800-735-2929
from Voice Phone 1-800-735-2922

Contact Phone: (916) 574-1890
Contact FAX: (916) 574-1885

November 18, 2014

File Ref: SCH #2014102047

Caltrans, Office of Environmental Management
Attention: Oliver Iberien
111 Grand Avenue
Oakland, CA 94612

**Subject: Negative Declaration (ND) for the Estero Americano Bridge
Replacement, Marin and Sonoma Counties**

Dear Mr. Iberien:

The California State Lands Commission (CSLC) staff has reviewed the subject ND for the Estero Americano Bridge Replacement (Project), which is being prepared by the California Department of Transportation (Caltrans). Caltrans, as a public agency proposing to carry out a project, is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The CSLC is a trustee agency for projects that could directly or indirectly affect sovereign lands and their accompanying Public Trust resources or uses. Additionally, because the Project involves work on sovereign lands, the CSLC will act as a responsible agency.

1-1

CSLC Jurisdiction and Public Trust Lands

The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6301, 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On navigable non-tidal waterways, including lakes, the State holds fee ownership of the bed of the waterway landward to the ordinary low water mark and a Public Trust easement landward to the ordinary high water mark,

except where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

After review of the information contained in the ND, CSLC staff has determined that Americano Creek, at the Project location, is under the jurisdiction of the CSLC. Therefore, the Project will require formal authorization for the use of sovereign land from the CSLC for the portion of the Project encroaching on State owned lands, and, pursuant to the provisions of Section 101.5 of the California Streets and Highways Code, an application must be submitted. Please contact George Asimakopoulos, Public Land Management Specialist (see contact information below), for further information.

1-2

Project Description

The Project will include the removal and replacement of the existing bridge over Americano Creek on State Route 1 in an unincorporated area of Marin and Sonoma Counties, about 1.5 miles east of Valley Ford. The existing bridge, built in 1925, is 146 feet long and 25 feet wide, has a two-foot sag, is structurally deficient and subject to periodic flooding due to its low elevation in the landscape, and is at the end of its service life. The Project would replace the existing bridge with a 266-foot-long and 40-foot-wide cast-in-place concrete box girder bridge, and would be about 6 feet higher than the existing bridge to accommodate a 100-year flood event. The purpose of the Project is to maintain the integrity of the roadway and provide flooding relief at this location.

Environmental Review

CSLC staff requests that Caltrans consider the following comments on the Project's ND.

General Comments

- 1. **Type of Document.** The identification of avoidance and minimization measures (as outlined in Appendix G of the ND) indicate that Project impacts would be potentially significant without the implementation of such measures; therefore, CSLC staff suggests that a Mitigated Negative Declaration (MND) would be the appropriate document required CEQA (see generally sections 15060 and 15061 of the State CEQA Guidelines). In addition, a Mitigation Monitoring and Reporting Program should be adopted pursuant to section 15097 of the State CEQA Guidelines that clearly presents the Project's potentially significant impacts and the associated mitigation measures that reduce those impacts to a less-than-significant level.
- 2. **Responsible Agency.** CSLC staff requests that the CSLC be added to the list of "Other public agencies whose approval is required."
- 3. **Project Description.** A thorough and complete Project Description should be included in the ND in order to facilitate meaningful environmental review of potential impacts and proposed mitigation measures. Currently, the Project Description does not provide enough information regarding the methods used for bridge removal or replacement for CSLC staff to provide comprehensive comments on either the analysis or the significance conclusions reached by Caltrans in the ND. As a

1-3

1-4

1-5

1-6

responsible agency that will be asked to rely on the Caltrans' ND for lease issuance, the CSLC must be provided a document that is both more detailed and as precise as possible in describing all anticipated Project activities (e.g., methods/equipment used for bridge removal and replacement, methods/locations of dewatering, figures showing the locations for staging or disposal of cut and fill material, etc.), as well as the details of the timing and length of each activity; therefore, CSLC staff recommends that Caltrans revise the Project Description and perform a more robust analysis of the impacts resulting from all Project-related activities.

Biological Resources

4. Noise. The ND lists "construction-related noise" as one of the impacts to biological resources; however, no discussion is provided as to what the source of the noise will be or at what decibel level. Although Caltrans has indicated that it is in consultation with the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service, the ND should evaluate noise and vibration impacts on aquatic animals and birds from the proposed Project. In particular, Caltrans should specify whether or not the use of the proposed rig-mounted drills or other equipment would result in the disturbance or injury of aquatic species to allow a more comprehensive review by the reader.

1-7

5. Invasive Species. Dewatering activities could introduce aquatic invasive species to the Project area, and is not discussed in the ND. Aquatic invasive species may be introduced to the Project area by fouling surfaces of temporary reusable equipment used for dewatering, such as coffer dams or water pillows. The ND should consider the potential for these technologies to spread aquatic invasive species from other locations to the Project site. The ND should also consider a range of options to prevent the introduction of aquatic invasive species to Americano Creek, including acquiring dewatering equipment from nearby or requiring cleaning of equipment prior to use for dewatering activities.

1-8

Cultural Resources

6. Title to Resources. The ND should mention that the title to all abandoned archaeological sites and historic or cultural resources on or in the tide and submerged lands of California is vested in the State and under the jurisdiction of the CSLC. CSLC staff requests that Caltrans consult with Assistant Chief Counsel Pam Griggs (see contact information below) should any cultural resources on State lands be discovered during construction of the proposed Project.

1-9

Climate Change

7. Greenhouse Gases. The ND states that "Although construction emissions are unavoidable and are expected to be minimal, the proposed project will not increase capacity and is not expected to result in additional operational CO₂ emissions." A greenhouse gas (GHG) emissions analysis consistent with the California Global Warming Solutions Act (Assembly Bill [AB] 32) and required by the State CEQA Guidelines should be included in the ND. Caltrans states that "it is too speculative to

1-10

make a determination regarding the significance of the Project's direct impact and its contribution on the cumulative scale to climate change;" however, CSLC staff recommends that Caltrans quantify and analyze construction emissions and make a significance determination regarding GHG emissions from construction of the bridge replacement. To determine the significance of GHG emissions, CSLC staff recommends that Caltrans identify a threshold for significance for GHG emissions, calculate the level of GHGs that would be emitted as a result of construction of the Project, and compare the calculated emissions against the threshold to determine whether impacts are significant. If impacts are significant, then mitigation measures should be identified that would reduce them the extent feasible.

Water Quality and Stormwater Runoff

- d. Water Quality. The ND states that "Sediment from construction will be minimized by the use of Caltrans' construction best management practices for stormwater." However, there is no analysis of potential impacts to water quality. CSLC staff requests that the ND describe all specific activities that could affect water quality (bridge removal, dewatering activities, etc.) and clearly detail the measures that would reduce impacts to water quality to a less-than-significant level.

1-11

Thank you for the opportunity to comment on the ND for the Project. As a responsible and trustee agency, the CSLC may need to rely on the Final ND (or MND) and, therefore, we request that you consider our comments prior to adoption of the ND (or MND).

Please send copies of future Project-related documents, including electronic copies of the Final ND (or MND), Mitigation Monitoring and Reporting Program (MMRP) if applicable, and Notice of Determination (NOD), when they become available, and refer questions concerning environmental review to Cynthia Herzog, Senior Environmental Scientist, at (916) 574-1310 or via e-mail at Cynthia.Herzog@slc.ca.gov. For questions concerning archaeological or historic resources under CSLC jurisdiction, please contact Assistant Chief Counsel Pam Griggs at (916) 574-1854 or via email at Pamela.Griggs@slc.ca.gov. For questions concerning CSLC leasing jurisdiction, please contact George Asimakopoulos, Public Land Management Specialist, at (916) 574-0990, or via email at George.Asimakopoulos@slc.ca.gov.

Sincerely,



Cy R. Oggins, Chief
Division of Environmental Planning
and Management

cc: Office of Planning and Research
G. Asimakopoulos, LMD, CSLC
C. Herzog, DEPM, CSLC
J. Rader, Legal, CSLC

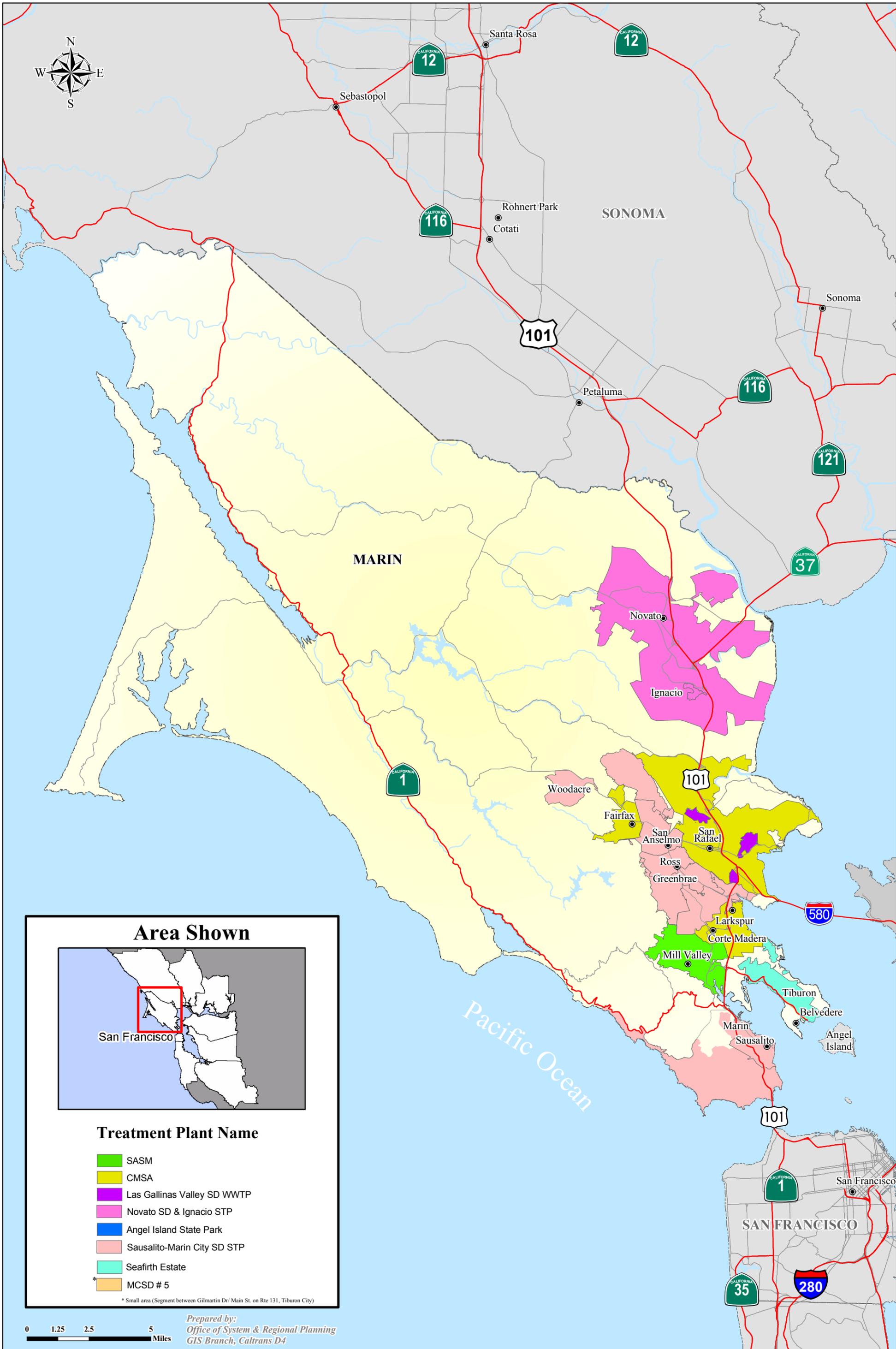
Reference manual for inspection and cleaning of equipment and vehicles to prevent the spread of invasive species

U.S. Department of the Interior Bureau of Reclamation. 2010. Technical Memorandum No. 86-68220-07-05

<http://www.usbr.gov/mussels/prevention/docs/EquipmentInspectionandCleaningManual2010.pdf>

**Information of Location Public Owned Treatment Works
(POTWs)**

Marin County - POTW Service Areas



Area Shown



Treatment Plant Name

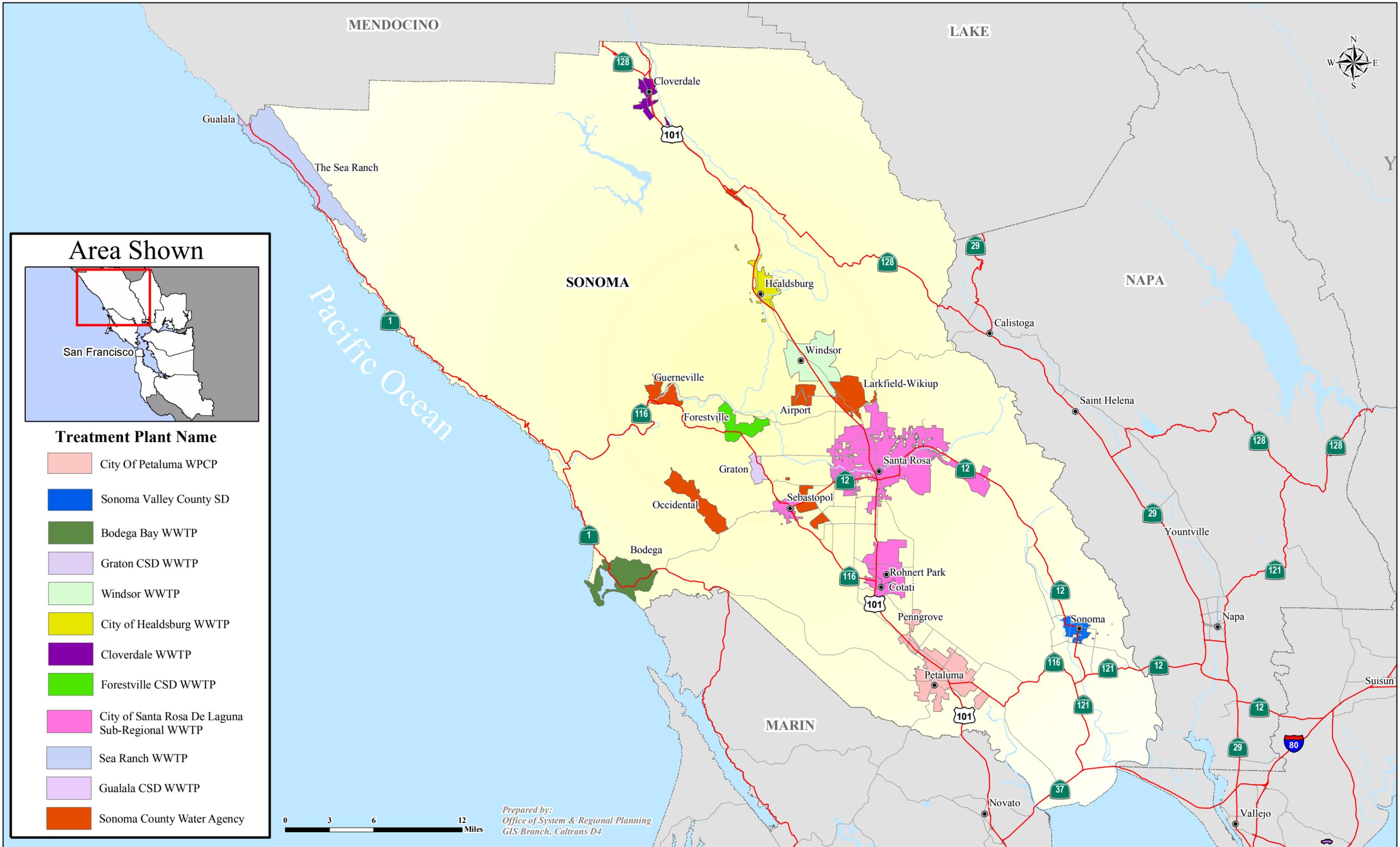
- SASM
- CMSA
- Las Gallinas Valley SD WWTP
- Novato SD & Ignacio STP
- Angel Island State Park
- Sausalito-Marin City SD STP
- Seafirth Estate
- * MCSD # 5

* Small area (Segment between Gilmartin Dr/ Main St. on Rte 131, Tiburon City)

0 1.25 2.5 5 Miles

Prepared by:
Office of System & Regional Planning
GIS Branch, Caltrans D4

Sonoma County - POTW Service Areas



	City Discharger	Treatment Plant Name	WDR Discharger Name	Discharger Contact Name	Contact Phone No.	Contact Email	Mail Address	Ct Contact for Groundwater & De-Watering Discharges	Service Area of the POTW
35	Marin	Marin County SD #5 Tiburon Plant	Marin County SD #5	Bob Lynch	415-435-1501	san15@aol.com	Tim Oday, Acting Deputy Director, P.O. Box 227, Tiburon, CA 94920	Contact Bob Lynch 415-435-1501 or Heinrich Olsgaard but- NO WAY - very small plant can't handle any more capacity	Only Ct ROW is on Hwy 131 (Tiburon Blvd) from Gilmartin Dr. to Main St.
36	Mill Valley	Sewerage Agency of Southern Marin	Sewerage Agency of Southern Marin	David Coe	415-388-2402	dcoec@cityofmillvalley.org	David Coe, General Manager, Sewerage Agency of Southern Marin, P.O. Box 1029 Mill Valley, CA 94942	Best contact :David Coe @ 415-388-2402 x 17 Email of 7/7/04 has copy of permit, [no Website], hasn't occurred often enough, case-by-case review.	Per David Coe: " there are 11 service areas south of Corte Madera, including the six members listed below (Lines A 38-43) - all send there WW to SASM. Some of the areas near CT ROW are Mill Valley, Richardson Bay, Tam Jct. - on Hwy 001 alone there are 3 agencies..."
37	Tiburon		Seafirth Estates STP	Bonner Buehler	415-388-2402, ext. 16; 415-388-8081(home)	pribking@aol.com	Bonner Buehler, Plant Operator, Seafirth Estate Co., Inc. 33 Seafirth Place, Tiburon, CA 94920	A very small service area on the northside of the Tiburon Peninsula - not close to Hwy 131 - not applicable to Caltrans.	Not applicable to Caltrans
38	Mill Valley		Almonte Sanitary District	Bonner Buehler	415-388-8775; 415-313-0877(pager)	pribking@aol.com	Bonner Buehler, Manager, Almonte Sanitary District, P.O. Box 698, Mill Valley, CA 94941	Same as SASM - see Line # A - 36	Part of SASM see Line # A - 36
39	Mill Valley		Alto Sanitary District	Tom Roberts	415-388-3696	tomroberts7@aol.com	Tom Roberts, Manager, Alto Sanitary District, P.O. Box 163, Mill Valley, CA 94941	Same as SASM - see Line # A - 36	Part of SASM see Line # A - 36
40	Mill Valley		Homestead Valley Sanitary District	Tom Roberts	415-388-4796	tomroberts7@aol.com	Tom Roberts, Manager, Homestead Valley Sanitary District, P.O. Box 149, Mill Valley, CA 94941	Same as SASM - see Line # A - 36	Part of SASM see Line # A - 36
41	Mill Valley		City of Mill Valley	Wayne Bush	415-388-4033	wbush@cityofmillvalley.org	Wayne Bush, Director of Public Works, City of Mill Valley, 26 Corte Madera Ave., Mill Valley, CA 94941	Same as SASM - see Line # A - 36	Part of SASM see Line # A - 36
42	Tiburon		Richardson Bay Sanitary District	Frank Dittle	415-388-1345	rbsdtd@aol.com	Frank Dittle, Manager, Richardson Bay Sanitary District, 500 Tiburon Blvd., Tiburon, CA 94920	Same as SASM - see Line # A - 36	Part of SASM see Line # A - 36
43	Mill Valley		Tamalpais Community Services District	Phil Gorny	415-388-6393	tamgm@infoasis.com	Phil Gorny, Manager, Tamalpais Community Services District, 305 Bell Lane, Mill Valley, CA 94941	Same as SASM - see Line # A - 36	Part of SASM see Line # A - 36
44	San Rafael	Central Marin Sanitation Agency	Central Marin Sanitation Agency	Nancy Evans	415-459-1455 ext. 141	nevans@centralmarinesa.org	Nancy Evans, 1301 Andersen Dr., San Rafael, CA 94901	Best Contact : Bob Adamson 415-459-1455 x 140. See Website - www.cmsa.us - (Community, Permitting, Permit Types) Yes they will accept	Central San Rafael and San Quentin Prison and treats water from the following five Sanitation Districts
45	Larkspur	Service area: Ross Valley in Marin County from Larkspur up to and include Fairfax	Sanitary District No. 1 of Marin County	Barry Hogue	415-461-1122(ph); 415-461-4715(fax)	bhogue@pacbell.net	Barry Hogue, Sanitary District No. 1 of Marin County, 2000 Larkspur Landing Circle, Larkspur, CA 94939	Same as CMSA - see Line # A-44 [Service Area are the small towns going out Sir F. Drake - like Fairfax, Ross, Woodside, etc.]	Service area: Ross Valley in Marin County from Larkspur up to and including Fairfax
46			Sanitary District No. 2 of Marin County	David Montero	415-927-5069	dmontero@ci.corte-madera.ca.us	David Montero, Sanitary District No. 2 of Marin County, P.O. Box 159, Corte Madera, CA 94925	Same as CMSA - see Line # A-44 [Service Area is the town of Corte Madera]	Same as CMSA - see Line # A-44 [Service Area is the town of Corte Madera]
47			San Rafael Sanitation District	Andrew Preston	415-454-4001	andy.preston@ci.san-rafael.ca.us	Andrew Preston, San Rafael Sanitation District, P.O. Box 151560, San Rafael, CA 94915	Same as CMSA - see Line # A-44 [Service Area is the city of San Raphael]	Same as CMSA - see Line # A-44 [Service Area is the city of San Raphael]
48	Las Gallinas Valley SD WWTP	Las Gallinas Valley SD WWTP	Las Gallinas Valley SD	Al Petrie	415-472-1734x11	apetrie@lqvsd.org	Al Petrie, 300 Smith Ranch Road, San Rafael, CA 94903	Basically the same as CMSA Line # A-44 - this is a small plant, with a small service area, they would only accept in their service area. Call Bob Adamson at 415-459-1455 x 140	Service area is Northern San Rafael and the unincorporated areas North of San Rafael to the city limits of Novato. [On Highway 101 from the Lincoln Ave. on-ramp to about 6.5 miles north to Novato. (p.m. 12.3 - 18.8) May include some of Highway 37.
49	Seafirth Estates STP	Seafirth Estates STP	Town Tiburon	Bonner Buehler	415-388-2402, ext. 16; 415-388-8081(home)	bdeuhler@cityofmillvalley.org	Bonner Buehler, Plant Operator, Seafirth Estate Co., Inc. 33 Seafirth Place, Tiburon, CA 94920	Contact Bonner Buehler @ 415-388-1345 Seafirth Estates is very small (private, 29 homes) - no capacity to accept - sends their WW to CMSA Line # A - 44	Most of Tiburon - but not the area serviced by MC SD #5
50			Almonte Sanitary District	Bonner Buehler	415-388-8775; 415-313-0877(pager)	bdeuhler@cityofmillvalley.org	Bonner Buehler, Manager, Almonte Sanitary District, P.O. Box 698, Mill Valley, CA 94941	Not a Treatment plant - collection only - sends their WW to CMSA Line A - 44 - per Bonner Buehler @ 415-388-1345	The Almonte area: Tam Junction, Manzanita, Richardson Bay
51	Angel Island State Park	Angel Island State Park	Angel Island State Park		415-435-1563	irodgo@parks.ca.gov		Not Applicable - no Caltrans R-O-W on Angel Island	No Caltrans R-O-W on Angel Island
52	Sausalito-Marin City SD STP	Sausalito-Marin City SD STP	Sausalito-Marin SD	Robert Simmons	415-332-0244	bob@smcsd.net		Contact Bob Simmons @ 415-332-0244 - There is a permit process- don't want sediment- want's pre-treatment - if no contaminants prefers we use the storm drain, open to negotiation	Sausalito, Marin City and Tennessee Valley Rd at the Jct of US 101
53			Sanitary District No. 1 of Marin County	Barry Hogue	415-461-1122	bhogue@pacbell.net		Yes, they would accept during the Dry Season with testing. Best contact is Barry Hogue @ 415-461-1122	Larkspur, Greenbrae, Woodlands, Ross, San Anselmo, and various unincorporated areas.
54	Novato SD and Ignacio STP	Novato SD and Ignacio STP	Novato SD	Tom Selfridge	415-892-1694	toms@novatosan.com		Contact: Laura Perucchi 415-892-1694x105 - "limited acceptance-individual cases-not inclined" Permit process: \$1282, Application fee \$175, Full Spectrum Analysis, may need to contact Glenn Young of City of Novato. Details at: "novatosam.com" Ord # 70 Article # 8 Section 811 page 24.	The City of Novato [which includes "Ignacio" - a part of the city.]

	City Discharger	Treatment Plant Name	WDR Discharger Name	Discharger Contact Name	Contact Phone No.	Contact Email	Mail Address	Ct Contact for Groundwater & De-Watering Discharges	Service Area of the POTW
101	City of Petaluma WPCP	City of Petaluma WPCP	City of Petaluma	Mike Ban	707-778-4487	mban@ci.petaluma.ca.us	Michael Ban, Director of Water Resources and Conversation, City of Petaluma, Department of Water Resources and Conservation, 11 Eglis St. Petaluma, CA 94952-2610	Margaret Orr @ 707-778-4589 says "they do accept groundwater, there is a permit process, large volume connection fee, whatever is most cost effective." Best contact for the Permit is John O'Hare @ 707-762-5892 at the Sewer Plant.	Per Mike Ban: serves just the City of Petaluma and the unincorporated area of Penngrove
102	Provide WW treatment for community of Penngrove	Provide WW treatment for community of Penngrove	Sonoma Water Agency	Jay Jasperse	707-526-5370		Sonoma County Water Agency, 2150 West College Avenue, Santa Rosa, CA 95401	Sends there WW to the City of Petaluma system - see Line # A - 102 Penngrove has no Caltrans ROW within its borders.	Part of City of Petaluma system - see Line # A - 102 Penngrove has no Caltrans ROW within its borders.
103	Sonoma Valley County SD	Sonoma Valley County SD	Sonoma Valley County SD	Jim Zambenini	707-975-5616 (cell)	jdz@scwa.ca.gov		Yes, they will accept Const water to the Sant. Sewer depending on the job, volume of flow, Contact Industrial Waste Inspector Susan Keach @ 707-521-1820	Per Susan Keach: "this is not cut-and-dried - they service the towns of Sonoma, Glen Ellen, and the "Valley of the Moon" - Mostly Hwy 12"

Project Site Investigation Report



**SUPPLEMENTAL
SITE INVESTIGATION REPORT**

**ESTERO AMERICANO CREEK
BRIDGE REPLACEMENT PROJECT
MARIN COUNTY, CALIFORNIA**

PREPARED FOR:

CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 4
OFFICE OF ENVIRONMENTAL ENGINEERING
111 GRAND AVENUE, MS8C
OAKLAND, CA 94612



PREPARED BY:

GEOCON CONSULTANTS, INC.
6671 BRISA STREET
LIVERMORE, CA 94550



GEOCON PROJECT NO. E8721-02-34
CALTRANS EA 04-209501
PROJECT # 04-1200-0116-1

FEBRUARY 2016

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FIGURES

1. Vicinity Map
2. Site Plan

TABLES

1. Boring Coordinates
2. Summary of CAM 17 Metals Results
3. Summary of Organic Compounds Results

APPENDICES

- A. Drilling Permit
- B. Laboratory Reports and Chain-of-Custody Documentation
- C. Soil Boring Log

REPORT LIMITATIONS

This report has been prepared exclusively for the State of California Department of Transportation (Caltrans) District 4. The information contained herein is only valid as of the date of the report and will require an update to reflect additional information obtained.

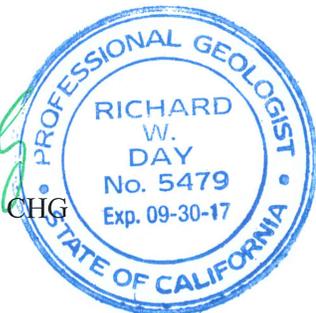
This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein. Therefore, the report should be deemed conclusive with respect to only the information obtained. We make no warranty, express or implied, with respect to the content of this report or any subsequent reports, correspondence or consultation. Geocon Consultants, Inc. strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.

The contents of this report reflect the views of the author who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

GEOCON CONSULTANTS, INC.


Luann Beadle
Project Scientist


Richard Day, CEG, CHG
Senior Geologist



CALIFORNIA DEPARTMENT OF TRANSPORTATION – DISTRICT 4 OFFICE OF ENVIRONMENTAL ENGINEERING

Reviewed By:

Recommended By:

Approved By:

Nandini Vishwanath
Task Order Manager

Chris Wilson, PE
District Branch Chief

Allen Baradar, PE
District Office Chief

PROJECT TEAM

Contact	Affiliation	Responsibility
Romy Fuentes, PE 510.622.8803 510.622.0198 fax romy_f_fuentes@dot.ca.gov	Caltrans – District 4 Consultant Services 111 Grand Avenue, MS7B Oakland, California 94612	Contract Manager
Nandini Vishwanath, PE 510.286.5654 510.286.5639 fax nandini.vishwanath@dot.ca.gov	Caltrans – District 4 Environmental Engineering 111 Grand Avenue, MS8C Oakland, California 94612	Task Order Manager
Richard Day, CEG, CHG Luann Beadle 925.371.5900 925.371.5915 fax geoconliv@geoconinc.com	Geocon Consultants, Inc. 6671 Brisa Street Livermore, California 94550 (<i>Caltrans Consultant</i>)	Project Management Sample Collection Field QA/QC Investigation Report
Doug Krause, CIH 530.758.6397 530.758.6506 fax dkrause@pacbell.net	Krause & Associates 216 F. Street, Suite 162 Davis, California 95616 (<i>Geocon Subconsultant</i>)	Health and Safety
Jose Tenorio, Jr. 702.307.2659 702.307.2691 fax jojo@atl-labs.com	Asset Laboratories 3151 Post Road Las Vegas, Nevada 89118 (<i>Geocon Subcontractor</i>)	Groundwater Sample Analysis

SUPPLEMENTAL SITE INVESTIGATION REPORT

1.0 INTRODUCTION

This Supplemental Site Investigation Report was prepared by Geocon Consultants, Inc. (Geocon) under California Department of Transportation (Caltrans) Contract No. 04A4336 and Task Order No. 34 (TO-34), EA 04-209501, for the Estero Americano Bridge Replacement Project located in Marin County, California.

1.1 Project Description

The project is located in Marin County along State Route 1 (SR-1), near the community of Valley Ford, California. Caltrans proposes to remove the existing bridge spanning Estero Americano Creek and replace it with a wider and longer box girder bridge. To address periodic flooding issues, the new bridge will be six feet higher in elevation. The project location is depicted on the attached Site Plan, Figure 1.

1.2 General Objectives

The purpose of the site investigation was to evaluate concentrations of California Assessment Manual 17 (CAM 17) dissolved (filtered) metals, total petroleum hydrocarbons as diesel (TPHd), as motor oil (TPHmo), and as gasoline, (TPHg), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and methyl tert-butyl ether (MTBE) in groundwater near the bridge structure. A previous soil and groundwater investigation performed in July 2015 included analysis for CAM 17 total (unfiltered) metals in groundwater as documented in the Preliminary Site Investigation Report, dated September 17, 2015. The information obtained from this investigation will be used by Caltrans to evaluate groundwater handling practices, worker health and safety, and groundwater reuse and disposal options.

2.0 BACKGROUND

2.1 Hazardous Waste Determination Criteria

Regulatory criteria to classify a waste as California hazardous for handling and disposal purposes are contained in the CCR, Title 22, Division 4.5, Chapter 11, Article 3, §66261.24. Criteria to classify a waste as Resource, Conservation, and Recovery Act (RCRA) hazardous are contained in Chapter 40 of the Code of Federal Regulations (40 CFR), Section 261.

For waste containing metals, the waste is classified as California hazardous when: 1) the representative total metal content equals or exceeds the respective Total Threshold Limit Concentration (TTLC); or 2) the representative soluble metal content equals or exceeds the respective Soluble Threshold Limit Concentration (STLC) based on the standard Waste Extraction Test (WET). A waste has the potential of exceeding the STLC when the waste's total metal content is greater than or equal to 10 times the respective STLC value since the WET uses a 1:10 dilution ratio. Hence, when a total metal is detected

at a concentration greater than or equal to 10 times the respective STLC, and assuming that 100 percent of the total metals are soluble, soluble metal analysis is required. A material is classified as RCRA hazardous, or Federal hazardous, when the representative soluble metal content equals or exceeds the Federal regulatory level based on the Toxicity Characteristic Leaching Procedure (TCLP).

The above regulatory criteria are based on chemical concentrations. Wastes may also be classified as hazardous based on other criteria such as ignitability and corrosivity; however, for the purposes of this investigation, toxicity (i.e., representative lead concentrations) is the primary factor considered for waste classification since waste generated during the construction activities would not likely warrant testing for ignitability or other criteria. Waste that is classified as either California hazardous or RCRA hazardous requires management as a hazardous waste.

2.2 Environmental Screening Levels

The San Francisco Bay Regional Water Quality Control Board (SFRWQCB) has prepared a technical report entitled *User's Guide: Derivation and Application of Environmental Screening Levels, Interim Final 2013* (updated December 2013), which presents Environmental Screening Levels (ESLs) for over 100 commonly found contaminants in soil, groundwater, soil gas, and surface water, to assist in evaluating sites impacted by releases of hazardous chemicals. "The ESLs are considered to be protective for typical bay area sites. Under most circumstances, ...the presence of a chemical in soil, soil gas, or groundwater at concentrations below the corresponding ESL can be assumed to not pose a significant threat to human health, water resources, or the environment." (SFRWQCB, December 2013). ESLs are risk assessment tools and are "not intended to serve as a rule to determine if a waste is hazardous under the state or federal regulations."

Residential and commercial/industrial land use ESLs are commonly used by contractors, soil trucking companies, and private and commercial land owners as default acceptance criteria to evaluate suitability of import soil material. The following ESL tables were used for this characterization:

- Table A. Shallow Soil (≤ 3 m bgs), Groundwater is a Current or Potential Source of Drinking Water
- Table B. Shallow Soil (≤ 3 m bgs), Groundwater is not a Current or Potential Source of Drinking Water
- Table E-1. Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion
- Table F. Surface Water Bodies, Freshwater, Marine, and Estuarine Environments

The respective ESLs are listed at the end of Tables 2 and 3 for comparative purposes.

3.0 SCOPE OF SERVICES

The supplemental scope of services performed under TO-34, EA 04-04-209501 included the following:

3.1 Pre-field Activities

- Obtained a boring permit from the Marin County Community Development Agency. A copy of the boring permit is included as Appendix A.
- Notified Underground Service Alert (USA) at least 48 hours prior to field activities.
- Retained the services of Asset Laboratories (Asset), Las Vegas, Nevada, a Caltrans-approved and California-certified analytical laboratory, to perform the chemical analyses of the groundwater sample.

3.2 Field Activities

The field investigation was performed on November 10, 2015, by Geocon staff. One soil boring was advanced at the project location using direct-push drilling techniques. A second, adjacent, boring was advanced due to sloughing in the first borehole.

One groundwater sample was collected for CAM 17 dissolved (filtered) metals, TPHd, TPHmo, TPHg, BTEX, and MTBE analyses. The sample was transported to Asset for analysis under standard chain-of-custody (COC) documentation.

4.0 INVESTIGATIVE METHODS

4.1 Sampling Procedures

One boring was advanced to a depth of approximately 20 feet using direct-push drilling techniques. Because the initial boring was subject to sloughing, a second boring was advanced adjacent to the first. The boring coordinates are presented on Table 1. The Site Plan, Figure 2, shows the boring location.

The boring was hydraulically advanced using a two-inch-diameter, four-foot-long stainless steel core-barrel sampler lined with an acetate sample tube into undisturbed soil. The core-barrel sampler and acetate tube were removed and replaced with a temporary PVC screen and casing to facilitate groundwater sample collection. The grab-groundwater sample was obtained using disposable tubing fitted with a check valve and pumping directly into the appropriate laboratory containers.

Sample containers were labeled, placed in a chest cooled with ice as necessary, and transported to a Caltrans-approved, certified environmental laboratory using standard COC documentation. The borings were backfilled to near-surface with neat cement.

4.2 Laboratory Analyses

Laboratory analyses were performed by Asset under standard turnaround-time (TAT) per the Task Order Manager. The laboratory reports and COC documentation are included in Appendix B.

The groundwater sample was analyzed for:

- CAM 17 dissolved metals using EPA Test Methods 6010B and 7470A
- TPHg using EPA Test Method 8015B
- TPHd and TPHmo using EPA Test Method 8015 with Silica Gel Cleanup
- BTEX and MTBE using EPA Test Method 8260B

The groundwater sample analyzed for dissolved metals was filtered in the laboratory prior to analysis.

4.3 Laboratory QA/QC

QA/QC procedures were performed for each method of analysis with specificity for each analyte listed in the test method's QA/QC. The laboratory QA/QC procedures included the following:

- One method blank for every 10 samples, batch of samples or type of matrix, whichever was more frequent.
- One sample analyzed in duplicate for every 10 samples, batch of samples or type of matrix, whichever was more frequent.
- One spiked sample for every 10 samples, batch of samples or type of matrix; whichever was more frequent, with spike made at 10 times the detection limit or at the analyte level.

Prior to submitting the samples to the laboratory, the COC documentation was reviewed for accuracy and completeness.

5.0 INVESTIGATIVE RESULTS

5.1 Subsurface Conditions

Observations during field activities indicated that the soil generally consisted of medium dense, humid, brown silty gravel with sand to a depth of 4 feet. The underlying soil was medium stiff, mottled gray-brown silt with some clay and sandstone fragments to a depth of 8.5 feet. Soil from 8.5 to 11.5 feet was soft/medium stiff moist, light gray-brown silt with fine sand. Groundwater was encountered at approximately 11.5 feet, and the boring was further advanced to 20 feet to facilitate sample collection. The soil boring log is included in Appendix C.

5.2 Laboratory Analytical Results

The analytical results are summarized in Tables 2 and 3, and are summarized below:

- The following dissolved metals were not detected above their respective laboratory reporting limits: antimony, beryllium, cadmium, chromium, cobalt, lead, mercury, nickel, selenium, silver, thallium, vanadium, and zinc.
- Arsenic, barium, copper, and molybdenum were reported at dissolved concentrations ranging from 0.006 mg/l to 0.051 mg/l.
- TPHd was reported at a concentration of 0.076 mg/l.
- TPHmo was reported at a concentration of 0.10 mg/l.
- TPHg was not detected at or above the laboratory reporting limit of 0.050 mg/l.
- BTEX and MTBE were not detected at or above the laboratory reporting limits.

5.3 Laboratory Quality Assurance/Quality Control

We reviewed the QA/QC results provided with the laboratory analytical reports. The data indicate non-detect results for the method blanks at or above reporting limits. The relative percent difference for the matrix spike/matrix spike duplicate was outside of criteria for two QC samples; however, the analytical batch was validated by the control sample. The surrogate recovery was below the laboratory acceptable limit for the TPHd and TPHmo sample analyses, possibly due to matrix effect. Based on this limited data review, no additional qualifications of the soil data are necessary, and the data are of sufficient quality for the purposes of this report.

6.0 CONCLUSIONS

6.1 CAM 17 Metals in Groundwater

A grab-groundwater sample was collected from the boring and analyzed for dissolved CAM 17 metals. Antimony, beryllium, cadmium, chromium, cobalt, lead, mercury, nickel, selenium, silver, thallium, vanadium, and zinc were not detected at or above the laboratory reporting limits. Arsenic and copper were reported at concentrations exceeding one or more of the ESLs for groundwater as a current/potential source of drinking water, groundwater not as a current or potential source of drinking water, and surface water for marine and estuarine environments (SFRWQCB, December 2013, Tables A, B, and F). Barium and molybdenum were reported at concentrations below the ESLs.

Table 2 summarizes analytical results and corresponding ESLs for the recent CAM 17 dissolved metals and the CAM 17 total metals results for the sample collected in July 2015, reported previously. The higher concentrations and number of metals that exceeded one or more ESLs in the CAM 17 total metals analysis are likely due to suspended sediment in the unfiltered grab-groundwater samples.

Based on the reported CAM 17 total and dissolved metals concentrations, groundwater generated during construction may require treatment to reduce turbidity (i.e., sediment load) and resulting metal content prior to discharge or disposal.

Based on the reported metals concentrations, groundwater generated during construction may require treatment to reduce metal content prior to discharge or disposal.

6.2 Organic Compounds in Groundwater

The groundwater sample collected from boring B2 was analyzed for TPHd, TPHmo, TPHg, BTEX, and MTBE.

TPHg, BTEX, or MTBE were not detected at or above laboratory reporting limits.

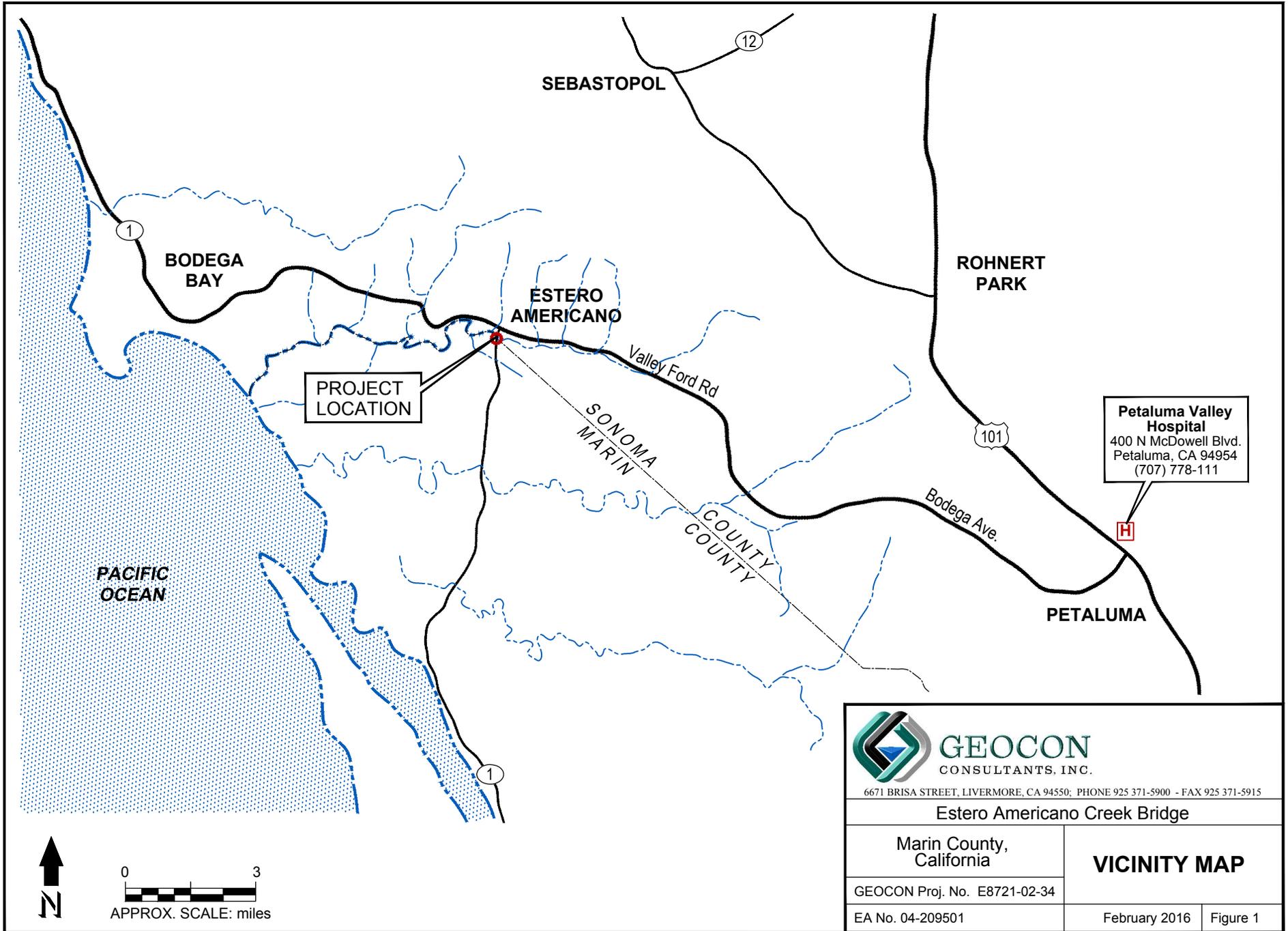
TPHd and was reported in the sample at a concentration below the ESLs (SFRWQCB, December 2013, Tables A, B, and F).

TPHmo was reported at a concentration of 0.10 mg/l, equal to the ESL for groundwater as a potential drinking water source and for freshwater surface environments, but below the ESLs for groundwater not as a potential source of drinking water and for marine and estuarine surface water environments.

A summary of organic compound concentrations for the groundwater sample is presented in Table 3.

6.3 Worker Protection

The contractor(s) should prepare a project-specific health and safety plan to prevent or minimize worker exposure to metals and organic compounds in groundwater. The plan should include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other health and safety protocols and procedures for the handling of groundwater.

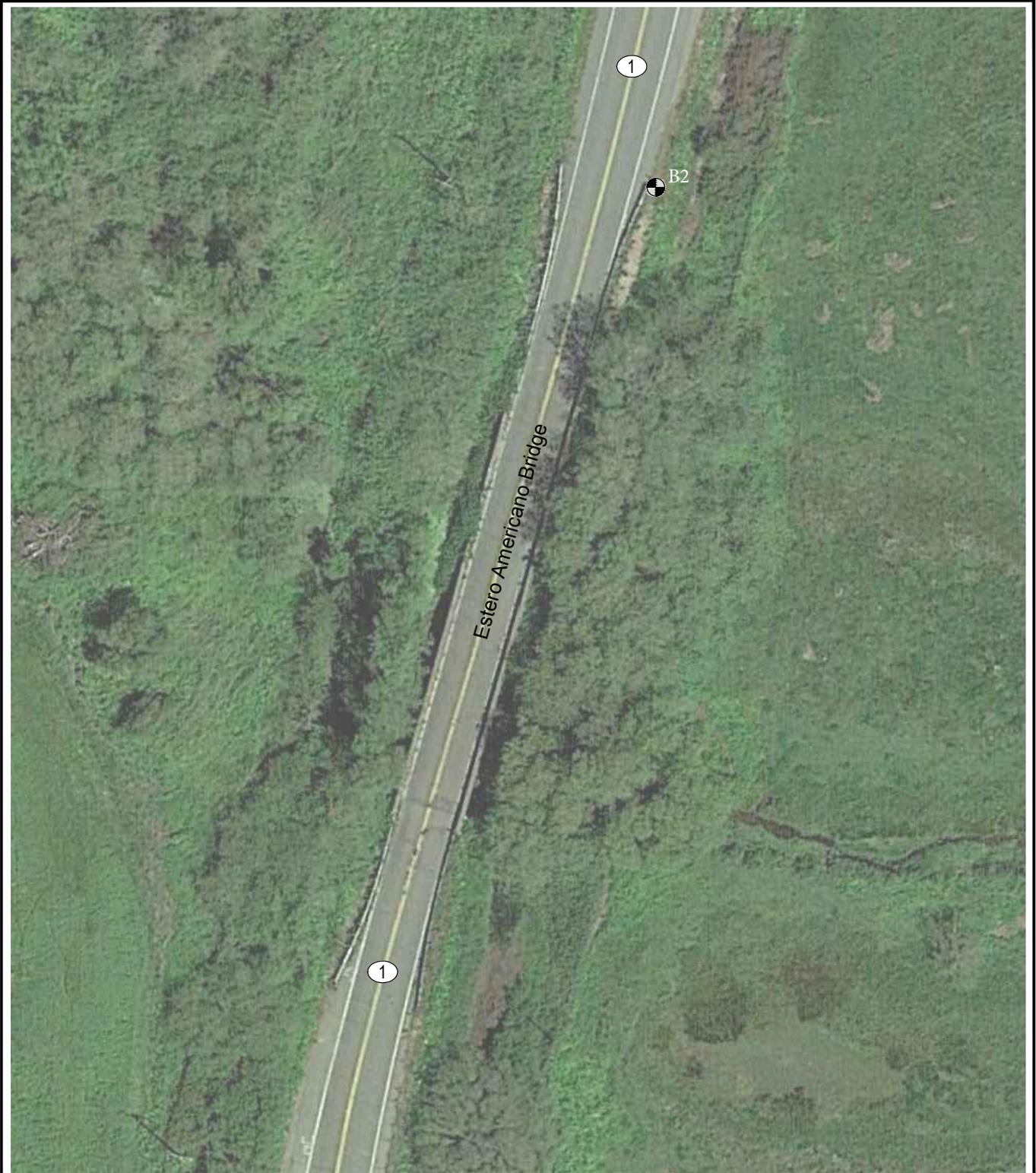


Petaluma Valley Hospital
 400 N McDowell Blvd.
 Petaluma, CA 94954
 (707) 778-1111

 <p>6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915</p>	
Estero Americano Creek Bridge	
Marin County, California	
VICINITY MAP	
GEOCON Proj. No. E8721-02-34	
EA No. 04-209501	February 2016
Figure 1	



0 3
 APPROX. SCALE: miles



LEGEND:
 Boring Location



GEOCON
 CONSULTANTS, INC.

6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915

Estero Americano Creek Bridge

Marin County,
 California

SITE PLAN

GEOCON Proj. No. E8721-02-34

EA No. 04-209501

February 2016

Figure 2

TABLE 1
Boring Coordinates
Estero Americano Creek Bridge
Marin County, California

Boring	Latitude	Longitude
B2	38.313779	-122.897164

TABLE 2
Summary of CAM 17 Metals Results
Estero Americano Creek Bridge
Marin County, California

Sample ID	Sample Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	
B1-GW (Total)	7/22/2015	<0.010	0.024	1.1	0.0036	<0.0030	0.56	0.088	0.13	0.062	0.0007	<0.0050	0.44	<0.010	<0.0030	<0.015	0.37	0.46	
B2-GW (Dissolved)	11/10/2015	<0.010	0.011	0.051	<0.0030	<0.0030	<0.0030	<0.0030	0.006	<0.010	<0.00020	0.019	<0.0050	<0.010	<0.0030	<0.015	<0.0030	<0.010	
ESLs																			
GW is current/potential source		0.006	0.010	1.0	0.00053	0.00025	0.05	0.0030	0.0031	0.0025	0.000025	0.078	0.0082	0.0050	0.00019	0.0020	0.019	0.081	
GW not current/potential source		0.030	0.036	1.0	0.00053	0.00025	0.18	0.0030	0.0031	0.0025	0.000025	0.24	0.0082	0.0050	0.00019	0.0040	0.019	0.081	
Surface Water - Freshwater		0.006	0.00014	1.0	0.0027	0.00025	0.05	0.0030	0.0090	0.0025	0.000025	0.078	0.052	0.0050	0.00034	0.0020	0.019	0.12	
Surface Water - Marine		0.50	0.00014	1.0	0.00053	0.0093	0.18	0.0030	0.0031	0.0081	0.000025	0.24	0.0082	0.071	0.00019	0.0040	0.019	0.081	
Surface Water - Estuarine		0.030	0.00014	1.0	0.00053	0.00025	0.18	0.0030	0.0031	0.0025	0.000025	0.24	0.0082	0.0050	0.00019	0.0040	0.019	0.081	

Notes:

Data are shown in milligrams per liter (mg/l).

Total metals analysis performed without filtration. Dissolved metals analysis performed after filtration

< = Not detected above the stated laboratory reporting limit

ESLs = Environmental Screening Levels, Tables A, B, and F (SFRWQCB, December 2013)

TABLE 3
Summary of Organic Compounds Results
Estero Americano Creek Bridge
Marin County, California

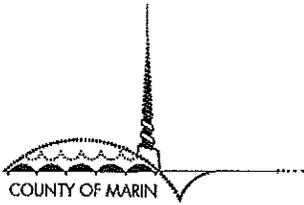
Sample ID	TPHd (mg/l)	TPHmo (mg/l)	TPHg (mg/l)	BTEX/MTBE (µg/l)
B2-GW	0.076	0.10	<0.050	ND
Trip Blank	---	---	<0.050	---
ESLs				
GW is current/potential source	0.10	0.10	0.10	Benzene = 1.0 Toluene = 40 Ethylbenzene = 30 MTBE = 5.0
GW not current/potential source	0.64	0.64	0.50	Benzene = 27 Toluene = 130 Ethylbenzene = 43 MTBE = 1,800
Surface Water - Freshwater	0.10	0.10	0.10	Benzene = 1.0 Toluene = 40 Ethylbenzene = 30 MTBE = 5.0
Surface Water - Marine	0.64	0.64	3.7	Benzene = 71 Toluene = 40 Ethylbenzene = 30 MTBE = 180
Surface Water - Estuarine	0.64	0.64	0.5	Benzene = 46 Toluene = 40 Ethylbenzene = 30 MTBE = 180
Groundwater - Soil Vapor Intrusion Residential	NV	NV	NV	Benzene = 27 Ethylbenzene = 310 Toluene = 95,000 MTBE = 9,900
Groundwater - Soil Vapor Intrusion Commercial/Industrial	NV	NV	NV	Benzene = 270 Toluene = NV Ethylbenzene = 3,100 MTBE = 100,000
<u>Taste and Odor Threshold*</u>	0.10	NV	0.005	Benzene = 170 Ethylbenzene = 29 Toluene = 42 MTBE = 40

Notes:

- mg/l = milligrams per liter
- µg/l = micrograms per liter
- TPHd = Total petroleum hydrocarbons as diesel
- TPHmo = Total petroleum hydrocarbons as motor oil
- TPHg = Total petroleum hydrocarbons as gasoline
- BTEX = Benzene, toluene, ethylbenzene, and total xylenes
- MTBE = methyl tert-butyl ether
- ND = Not detected
- NV = No Value
- < = Not detected at or above the stated laboratory reporting limit
- ESLs = Environmental Screening Levels, Tables A, B, E-1, and F (SFRWQCB, December 2013)
- * Water Quality Goals, Cal EPA SWRCB, April 2011

APPENDIX

A



COMMUNITY DEVELOPMENT AGENCY
ENVIRONMENTAL HEALTH SERVICES

MARIN COUNTY CIVIC CENTER
3501 CIVIC CENTER DRIVE, ROOM 236, SAN RAFAEL, CA 94903
(415) 473-6907 FAX: (415) 473-4120
www.marincounty.org/ehs

PERMIT FOR TEST HOLES / SOIL BORINGS - Amended

Date of Issuance: July 15, 2015
Date Amended: October 28, 2015
Date of Expiration: July 14, 2016

To: CA Dept. of Transportation (Caltrans)
111 Grand Avenue, 9th Floor
Oakland, CA 94612

Permit No.: TH 15/16 – 5 (1) + (1)

Street Address: State Route 1, Estero Creek Bridge
Shoulder near Valley Ford Road

City: Novato

Assessor's Parcel Number: 100-03-014

Driller: Gregg Drilling, 950 Howe Road, Martinez, CA 9455

Your application and plans have been reviewed for compliance with relevant California State and Marin County regulations. Permission is hereby granted to perform the stated work at the above, designated site.

In order to provide the necessary inspections and/or to prevent rescheduling the well driller, the well driller shall notify this office in person at least **two working days** in advance of drilling the well. Also, **contact the office on the day of the drilling**. The grout shall not be placed until approval from Environmental Health Services is granted. If arrangements other than an inspection are made and approved before drilling, then documentation on the methods and materials used to destroy the hole shall be submitted within 30 days of drilling.

CONDITIONS:

1. Construction and destruction criteria shall meet all applicable sections of the current State of California Water Well Standards Bulletin 74 (as revised).
2. Unless approved by EHS beforehand, the well driller shall seal with a cement grout and have a pump and tremie system available in the event that groundwater is discovered.
3. The holes shall be sealed ASAP, especially in the event of rain, to prevent contamination of the groundwater by surface water.
4. If the boring is drilled on property owned by a party other than the applicant, this permit is not valid until applicable local encroachment permits or permissions are first obtained. Please contact the appropriate landowner, city, county, park or special district agencies to obtain permissions.
5. The Marin County CUPA (Office of Waste Management, Department of Public Works) or the local L.P.A. shall be notified whenever test results from sampling demonstrate chemical contamination or leakage of underground storage tanks.
6. It is the responsibility of the driller and project consultant to locate all underground utilities which may be impacted by drilling activities.

This permit is valid for twelve months from the date of issuance. If work has not commenced prior to the expiration date, an additional application and the associated fee shall be required.

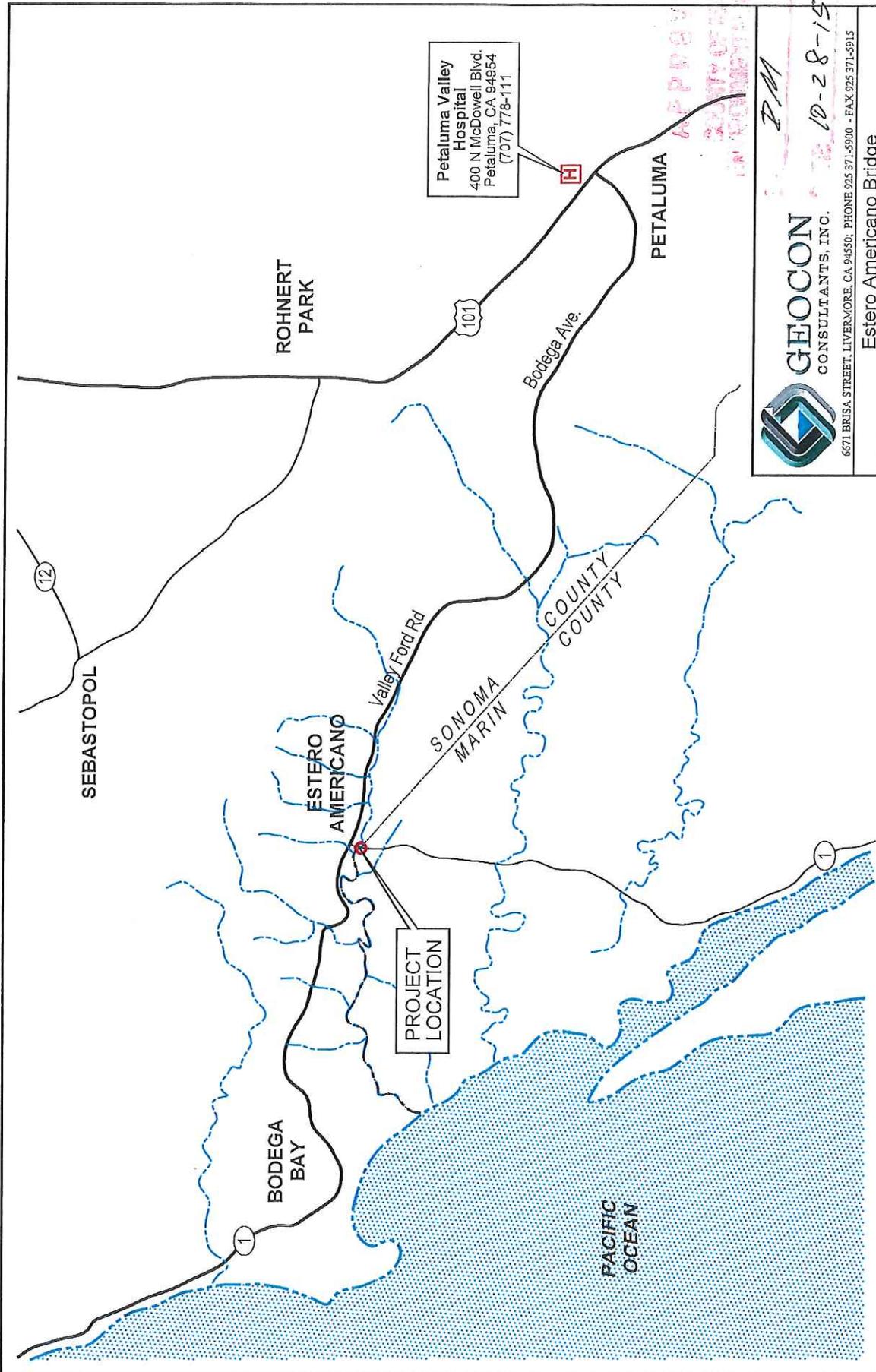
Issued by,

David McMullen for Scott Callow
Scott Callow, Senior R.E.H.S.

c: Geocon Consultants, Inc., 6671 Brisa Street, Livermore, CA 94550
CUPA

OFFICE USE ONLY

1. Number of holes to be drilled _____
2. Destruction docs submitted _____
3. Project completed _____



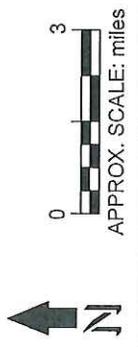
Petaluma Valley Hospital
 400 N McDowell Blvd.
 Petaluma, CA 94954
 (707) 778-1111



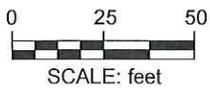
GEOCON
 CONSULTANTS, INC.
 6671 BRISA STREET, LIVERMORE, CA 94550 - PHONE 925 371-5900 - FAX 925 371-5915

DM
 10-28-15

Estero Americano Bridge	
Marin County, California	VICINITY MAP
GEOCON Proj. No. E8721-02-34	
EA No. 04-209501	September 2015
	Figure 1



APPROVED
 COUNTY OF SONOMA
 IN COUNTY OF SONOMA



RECEIVED

OCT 19 2015

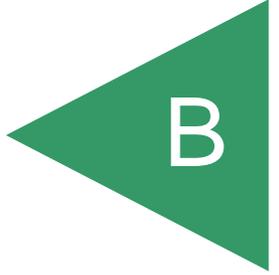
ENVIRONMENTAL HEALTH

LEGEND:

⊕ Boring Location

 <p>GEOCON CONSULTANTS, INC.</p> <p>6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915</p>		<p style="color: red;">APPROVED</p> <p style="color: red;">COUNTY OF MARIN ENVIRONMENTAL HEALTH</p> <p style="text-align: right;"><i>DM</i></p>	
		<p>Estero Americano Bridge</p>	
<p>Marin County, California</p>		<p>DATE: 10-20-15</p> <p>SITE PLAN</p>	
<p>GEOCON Proj. No. E8721-02-34</p>			
<p>EA No. 04-209501</p>		<p>September 2015</p>	<p>Figure 2</p>

APPENDIX



November 23, 2015

Luann Beadle\Rick Day
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
TEL: (925) 371-5900
FAX: (925) 371-5915

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N017595

RE: Estero Americano, E8721-02-34

Attention: Luann Beadle\Rick Day

Enclosed are the results for sample(s) received on November 11, 2015 by ASSET Laboratories .
The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in
accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Glen Gesmundo
QA Manager

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CALIFORNIA
11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436

NEVADA
3151 W. Post Rd., Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

"Serving Clients with Passion and Professionalism"

CLIENT: Geocon Consultants, Inc.
Project: Estero Americano, E8721-02-34
Lab Order: N017595

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 8015B DRO/ORO:

Surrogate recovery was below the laboratory acceptable limit for sample N017595-001B possibly caused by matrix effect. Sample contains soil.

RPD for Matrix Spike(MS) and Matrix Spike Duplicate(MSD) is outside criteria on QC samples N017491-001B-MS/N017491-001B-MSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).



CLIENT: Geocon Consultants, Inc.
Project: Estero Americano, E8721-02-34
Lab Order: N017595
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N017595-001A	B2-GW	Groundwater	11/10/2015 1:00:00 PM	11/11/2015	11/23/2015
N017595-001B	B2-GW	Groundwater	11/10/2015 12:30:00 PM	11/11/2015	11/23/2015
N017595-001C	B2-GW	Groundwater	11/10/2015 12:00:00 PM	11/11/2015	11/23/2015
N017595-002A	Trip Blank	Groundwater	11/10/2015	11/11/2015	11/23/2015



CLIENT: Geocon Consultants, Inc.
Lab Order: N017595
Project: Estero Americano, E8721-02-34
Lab ID: N017595-001A

Client Sample ID: B2-GW
Collection Date: 11/10/2015 1:00:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID:	MS5_151113A	QC Batch:	P15VW214	PrepDate:	Analyst:	QBM
Benzene	ND	0.50	µg/L	1	11/13/2015 01:09 PM	
Ethylbenzene	ND	0.50	µg/L	1	11/13/2015 01:09 PM	
m,p-Xylene	ND	1.0	µg/L	1	11/13/2015 01:09 PM	
MTBE	ND	0.50	µg/L	1	11/13/2015 01:09 PM	
o-Xylene	ND	0.50	µg/L	1	11/13/2015 01:09 PM	
Toluene	ND	0.50	µg/L	1	11/13/2015 01:09 PM	
Xylenes, Total	ND	1.5	µg/L	1	11/13/2015 01:09 PM	
Surr: 1,2-Dichloroethane-d4	99.1	78-125	%REC	1	11/13/2015 01:09 PM	
Surr: 4-Bromofluorobenzene	100	80-120	%REC	1	11/13/2015 01:09 PM	
Surr: Dibromofluoromethane	100	80-122	%REC	1	11/13/2015 01:09 PM	
Surr: Toluene-d8	101	80-120	%REC	1	11/13/2015 01:09 PM	

GASOLINE RANGE ORGANICS BY GC/FID

EPA 8015B

RunID:	GC4_151116A	QC Batch:	E15VW073	PrepDate:	Analyst:	QBM
GRO	ND	0.050	mg/L	1	11/16/2015 01:08 PM	
Surr: Chlorobenzene - d5	99.3	73-132	%REC	1	11/16/2015 01:08 PM	

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



ASSET Laboratories

ANALYTICAL RESULTS

Print Date: 23-Nov-15

CLIENT: Geocon Consultants, Inc.
Lab Order: N017595
Project: Estero Americano, E8721-02-34
Lab ID: N017595-001B

Client Sample ID: B2-GW
Collection Date: 11/10/2015 12:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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DRO AND ORO WITH SILICA GEL CLEANUP

EPA 3510C

EPA 8015B

RunID: GC1_151111C	QC Batch: 54021				PrepDate: 11/11/2015	Analyst: MDM
DRO	0.076	0.056		mg/L	1	11/11/2015 11:28 PM
ORO	0.10	0.056		mg/L	1	11/11/2015 11:28 PM
Surr: p-Terphenyl	14.6	44-138	S	%REC	1	11/11/2015 11:28 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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CLIENT: Geocon Consultants, Inc.
Lab Order: N017595
Project: Estero Americano, E8721-02-34
Lab ID: N017595-001C

Client Sample ID: B2-GW
Collection Date: 11/10/2015 12:00:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE

EPA 7470A

RunID:	QC Batch:	54088			PrepDate:	11/17/2015	Analyst:
Mercury	ND	0.20		µg/L	1	11/18/2015	11:12 AM

DISSOLVED METALS BY ICP

EPA 3010A

EPA 6010B

RunID:	ICP2_151118A	QC Batch:	54086		PrepDate:	11/17/2015	Analyst: CEI
Antimony	ND	0.010		mg/L	1	11/18/2015	12:23 PM
Arsenic	0.011	0.010		mg/L	1	11/18/2015	12:23 PM
Barium	0.051	0.0030		mg/L	1	11/18/2015	12:23 PM
Beryllium	ND	0.0030		mg/L	1	11/18/2015	12:23 PM
Cadmium	ND	0.0030		mg/L	1	11/18/2015	12:23 PM
Chromium	ND	0.0030		mg/L	1	11/18/2015	12:23 PM
Cobalt	ND	0.0030		mg/L	1	11/18/2015	12:23 PM
Copper	0.0060	0.0050		mg/L	1	11/18/2015	12:23 PM
Lead	ND	0.010		mg/L	1	11/18/2015	12:23 PM
Molybdenum	0.019	0.0050		mg/L	1	11/18/2015	12:23 PM
Nickel	ND	0.0050		mg/L	1	11/18/2015	12:23 PM
Selenium	ND	0.010		mg/L	1	11/18/2015	12:23 PM
Silver	ND	0.0030		mg/L	1	11/18/2015	12:23 PM
Thallium	ND	0.015		mg/L	1	11/18/2015	12:23 PM
Vanadium	ND	0.0030		mg/L	1	11/18/2015	12:23 PM
Zinc	ND	0.010		mg/L	1	11/18/2015	12:23 PM

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



CLIENT: Geocon Consultants, Inc.
Lab Order: N017595
Project: Estero Americano, E8721-02-34
Lab ID: N017595-002A

Client Sample ID: Trip Blank
Collection Date: 11/10/2015
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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GASOLINE RANGE ORGANICS BY GC/FID

EPA 8015B

RunID: GC4_151116A	QC Batch: E15VW073	PrepDate:	Analyst: QBM		
GRO	ND	0.050	mg/L	1	11/16/2015 02:20 PM
Surr: Chlorobenzene - d5	104	73-132	%REC	1	11/16/2015 02:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		



CLIENT: Geocon Consultants, Inc.
Work Order: N017595
Project: Estero Americano, E8721-02-34

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WD

Sample ID: MB-54086	SampType: MBLK	TestCode: 6010_WD	Units: mg/L	Prep Date: 11/17/2015	RunNo: 104242						
Client ID: PBW	Batch ID: 54086	TestNo: EPA 6010B EPA 3010A		Analysis Date: 11/18/2015	SeqNo: 2143088						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	ND	0.010									
Arsenic	ND	0.010									
Barium	ND	0.0030									
Beryllium	ND	0.0030									
Cadmium	ND	0.0030									
Chromium	ND	0.0030									
Cobalt	ND	0.0030									
Copper	ND	0.0050									
Lead	ND	0.010									
Molybdenum	0.001	0.0050									
Nickel	ND	0.0050									
Selenium	ND	0.010									
Silver	0.000263	0.0030									
Thallium	ND	0.015									
Vanadium	ND	0.0030									
Zinc	ND	0.010									

Sample ID: LCS-54086	SampType: LCS	TestCode: 6010_WD	Units: mg/L	Prep Date: 11/17/2015	RunNo: 104242						
Client ID: LCSW	Batch ID: 54086	TestNo: EPA 6010B EPA 3010A		Analysis Date: 11/18/2015	SeqNo: 2143089						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	0.518	0.010	0.5000	0	104	85	115				
Arsenic	0.521	0.010	0.5000	0	104	85	115				
Barium	0.528	0.0030	0.5000	0	106	85	115				
Beryllium	0.520	0.0030	0.5000	0	104	85	115				
Cadmium	0.520	0.0030	0.5000	0	104	85	115				
Chromium	0.522	0.0030	0.5000	0	104	85	115				
Cobalt	0.514	0.0030	0.5000	0	103	85	115				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



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CLIENT: Geocon Consultants, Inc.
Work Order: N017595
Project: Estero Americano, E8721-02-34

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WD

Sample ID: LCS-54086	SampType: LCS	TestCode: 6010_WD	Units: mg/L	Prep Date: 11/17/2015	RunNo: 104242						
Client ID: LCSW	Batch ID: 54086	TestNo: EPA 6010B EPA 3010A		Analysis Date: 11/18/2015	SeqNo: 2143089						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.518	0.0050	0.5000	0	104	85	115				
Lead	0.527	0.010	0.5000	0	105	85	115				
Molybdenum	0.524	0.0050	0.5000	0	105	85	115				
Nickel	0.524	0.0050	0.5000	0	105	85	115				
Selenium	0.514	0.010	0.5000	0	103	85	115				
Silver	0.515	0.0030	0.5000	0	103	85	115				
Thallium	0.514	0.015	0.5000	0	103	85	115				
Vanadium	0.513	0.0030	0.5000	0	103	85	115				
Zinc	0.520	0.010	0.5000	0	104	85	115				

Sample ID: N017595-001C-DUP	SampType: DUP	TestCode: 6010_WD	Units: mg/L	Prep Date: 11/17/2015	RunNo: 104242						
Client ID: ZZZZZ	Batch ID: 54086	TestNo: EPA 6010B EPA 3010A		Analysis Date: 11/18/2015	SeqNo: 2143091						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.010						0	0	20	
Arsenic	0.011	0.010						0.01098	2.16	20	
Barium	0.051	0.0030						0.05113	0.586	20	
Beryllium	0.000265	0.0030						0.0002497	0	20	
Cadmium	ND	0.0030						0	0	20	
Chromium	ND	0.0030						0	0	20	
Cobalt	ND	0.0030						0	0	20	
Copper	0.006	0.0050						0.006016	2.15	20	
Lead	ND	0.010						0	0	20	
Molybdenum	0.019	0.0050						0.01879	0.265	20	
Nickel	ND	0.0050						0	0	20	
Selenium	ND	0.010						0	0	20	
Silver	ND	0.0030						0	0	20	
Thallium	0.005	0.015						0.005364	0	20	
Vanadium	0.003	0.0030						0.002818	8.45	20	
Zinc	0.007	0.010						0.006628	0	20	

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



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CLIENT: Geocon Consultants, Inc.
Work Order: N017595
Project: Estero Americano, E8721-02-34

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISS

Sample ID: MB1-54088	SampType: MBLK	TestCode: 7470_W_DIS	Units: µg/L	Prep Date: 11/17/2015	RunNo: 104266						
Client ID: PBW	Batch ID: 54088	TestNo: EPA 7470A		Analysis Date: 11/18/2015	SeqNo: 2144044						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.20

Sample ID: MB2-54088	SampType: MBLK	TestCode: 7470_W_DIS	Units: µg/L	Prep Date: 11/17/2015	RunNo: 104266						
Client ID: PBW	Batch ID: 54088	TestNo: EPA 7470A		Analysis Date: 11/18/2015	SeqNo: 2144045						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.20

Sample ID: LCS-54088	SampType: LCS	TestCode: 7470_W_DIS	Units: µg/L	Prep Date: 11/17/2015	RunNo: 104266						
Client ID: LCSW	Batch ID: 54088	TestNo: EPA 7470A		Analysis Date: 11/18/2015	SeqNo: 2144046						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 4.304 0.20 5.000 0 86.1 85 115

Sample ID: N017595-001C-MS	SampType: MS	TestCode: 7470_W_DIS	Units: µg/L	Prep Date: 11/17/2015	RunNo: 104266						
Client ID: ZZZZZ	Batch ID: 54088	TestNo: EPA 7470A		Analysis Date: 11/18/2015	SeqNo: 2144047						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 4.275 0.20 5.000 0 85.5 75 125

Sample ID: N017595-001C-MSD	SampType: MSD	TestCode: 7470_W_DIS	Units: µg/L	Prep Date: 11/17/2015	RunNo: 104266						
Client ID: ZZZZZ	Batch ID: 54088	TestNo: EPA 7470A		Analysis Date: 11/18/2015	SeqNo: 2144048						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 4.634 0.20 5.000 0 92.7 75 125 4.275 8.06 20

Qualifiers:

- | | | |
|---|--|--|
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| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



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CLIENT: Geocon Consultants, Inc.
Work Order: N017595
Project: Estero Americano, E8721-02-34

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISS

Sample ID: N017595-001C-DUP		SampType: DUP		TestCode: 7470_W_DIS		Units: µg/L		Prep Date: 11/17/2015		RunNo: 104266	
Client ID: ZZZZZZ		Batch ID: 54088		TestNo: EPA 7470A		Analysis Date: 11/18/2015		SeqNo: 2144050			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20						0	0	20	

Sample ID: N017617-010B-DUP		SampType: DUP		TestCode: 7470_W_DIS		Units: µg/L		Prep Date: 11/17/2015		RunNo: 104266	
Client ID: ZZZZZZ		Batch ID: 54088		TestNo: EPA 7470A		Analysis Date: 11/18/2015		SeqNo: 2144052			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20						0	0	20	

Sample ID: N017617-010B-MS		SampType: MS		TestCode: 7470_W_DIS		Units: µg/L		Prep Date: 11/17/2015		RunNo: 104266	
Client ID: ZZZZZZ		Batch ID: 54088		TestNo: EPA 7470A		Analysis Date: 11/18/2015		SeqNo: 2144053			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.345	0.20	5.000	0	86.9	75	125				

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



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CLIENT: Geocon Consultants, Inc.
Work Order: N017595
Project: Estero Americano, E8721-02-34

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_DM_LLSGT

Sample ID: MB-54021	SampType: MBLK	TestCode: 8015_W_DM_ Units: mg/L	Prep Date: 11/11/2015	RunNo: 104109							
Client ID: PBW	Batch ID: 54021	TestNo: EPA 8015B EPA 3510C	Analysis Date: 11/11/2015	SeqNo: 2136099							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	ND	0.050									
ORO	ND	0.050									
Surr: p-Terphenyl	0.060		0.08000		75.3	44	138				

Sample ID: N017491-001B-MS	SampType: MS	TestCode: 8015_W_DM_ Units: mg/L	Prep Date: 11/11/2015	RunNo: 104109							
Client ID: ZZZZZ	Batch ID: 54021	TestNo: EPA 8015B EPA 3510C	Analysis Date: 11/11/2015	SeqNo: 2136102							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	0.936	0.051	1.020	0.06441	85.4	38	103				
Surr: p-Terphenyl	0.076		0.08163		93.6	44	138				

Sample ID: N017491-001B-MSD	SampType: MSD	TestCode: 8015_W_DM_ Units: mg/L	Prep Date: 11/11/2015	RunNo: 104109							
Client ID: ZZZZZ	Batch ID: 54021	TestNo: EPA 8015B EPA 3510C	Analysis Date: 11/12/2015	SeqNo: 2136103							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	0.761	0.051	1.020	0.06441	68.3	38	103	0.9359	20.6	20	R
Surr: p-Terphenyl	0.071		0.08163		86.5	44	138		0		

Sample ID: LCS-54021_ORO	SampType: LCS	TestCode: 8015_W_DM_ Units: mg/L	Prep Date: 11/11/2015	RunNo: 104109							
Client ID: LCSW	Batch ID: 54021	TestNo: EPA 8015B EPA 3510C	Analysis Date: 11/11/2015	SeqNo: 2136104							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	0.604	0.050	1.000	0	60.4	38	103				
Surr: p-Terphenyl	0.063		0.08000		78.5	44	138				

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



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CLIENT: Geocon Consultants, Inc.
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ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GAS_WP

Sample ID: E151116LCS	SampType: LCS	TestCode: 8015GAS_WP Units: mg/L	Prep Date:	RunNo: 104189							
Client ID: LCSW	Batch ID: E15VW073	TestNo: EPA 8015B	Analysis Date: 11/16/2015	SeqNo: 2139803							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	1.028	0.050	1.000	0	103	75	127				
Surr: Chlorobenzene - d5	51.068		50.00		102	73	132				

Sample ID: E151116MB1	SampType: MBLK	TestCode: 8015GAS_WP Units: mg/L	Prep Date:	RunNo: 104189							
Client ID: PBW	Batch ID: E15VW073	TestNo: EPA 8015B	Analysis Date: 11/16/2015	SeqNo: 2139804							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050									
Surr: Chlorobenzene - d5	50.933		50.00		102	73	132				

Sample ID: N017595-001ADUP	SampType: DUP	TestCode: 8015GAS_WP Units: mg/L	Prep Date:	RunNo: 104189							
Client ID: ZZZZZ	Batch ID: E15VW073	TestNo: EPA 8015B	Analysis Date: 11/16/2015	SeqNo: 2139806							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050						0	0	20	
Surr: Chlorobenzene - d5	52.475		50.00		105	73	132		0		

Sample ID: N017595-002AMS	SampType: MS	TestCode: 8015GAS_WP Units: mg/L	Prep Date:	RunNo: 104189							
Client ID: ZZZZZ	Batch ID: E15VW073	TestNo: EPA 8015B	Analysis Date: 11/16/2015	SeqNo: 2139808							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.994	0.050	1.000	0	99.4	74	130				
Surr: Chlorobenzene - d5	47.138		50.00		94.3	73	132				

Sample ID: N017595-002AMSD	SampType: MSD	TestCode: 8015GAS_WP Units: mg/L	Prep Date:	RunNo: 104189							
Client ID: ZZZZZ	Batch ID: E15VW073	TestNo: EPA 8015B	Analysis Date: 11/16/2015	SeqNo: 2139809							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.962	0.050	1.000	0	96.2	74	130	0.9940	3.27	30	

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



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ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GAS_WP

Sample ID: N017595-002AMSD	SampType: MSD	TestCode: 8015GAS_WP	Units: mg/L	Prep Date:	RunNo: 104189						
Client ID: ZZZZZ	Batch ID: E15VW073	TestNo: EPA 8015B	Analysis Date: 11/16/2015	SeqNo: 2139809							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Chlorobenzene - d5	46.150		50.00		92.3	73	132		0		

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CALIFORNIA
 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
 P: 562.219.7435 F: 562.219.7436

NEVADA
 3151 W. Post Rd., Las Vegas, NV 89118
 P: 702.307.2659 F: 702.307.2691

"Serving Clients with Passion and Professionalism"

CLIENT: Geocon Consultants, Inc.
Work Order: N017595
Project: Estero Americano, E8721-02-34

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID: P151113LCS		SampType: LCS		TestCode: 8260WATERP Units: µg/L			Prep Date:		RunNo: 104157		
Client ID: LCSW		Batch ID: P15VW214		TestNo: EPA 8260B			Analysis Date: 11/13/2015		SeqNo: 2137942		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.760	0.50	20.00	0	98.8	80	120				
Ethylbenzene	20.130	0.50	20.00	0	101	80	120				
m,p-Xylene	41.430	1.0	40.00	0	104	80	120				
MTBE	19.100	0.50	20.00	0	95.5	77	120				
o-Xylene	20.850	0.50	20.00	0	104	80	120				
Toluene	19.580	0.50	20.00	0	97.9	80	120				
Xylenes, Total	62.280	1.5	60.00	0	104	70	130				
Surr: 1,2-Dichloroethane-d4	23.510		25.00		94.0	78	125				
Surr: 4-Bromofluorobenzene	26.270		25.00		105	80	120				
Surr: Dibromofluoromethane	24.300		25.00		97.2	80	122				
Surr: Toluene-d8	25.210		25.00		101	80	120				

Sample ID: P151113LCSD		SampType: LCSD		TestCode: 8260WATERP Units: µg/L			Prep Date:		RunNo: 104157		
Client ID: LCSS02		Batch ID: P15VW214		TestNo: EPA 8260B			Analysis Date: 11/13/2015		SeqNo: 2137943		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.390	0.50	20.00	0	102	80	120	19.76	3.14	20	
Ethylbenzene	20.800	0.50	20.00	0	104	80	120	20.13	3.27	20	
m,p-Xylene	42.360	1.0	40.00	0	106	80	120	41.43	2.22	20	
MTBE	19.680	0.50	20.00	0	98.4	77	120	19.10	2.99	20	
o-Xylene	21.310	0.50	20.00	0	107	80	120	20.85	2.18	20	
Toluene	20.080	0.50	20.00	0	100	80	120	19.58	2.52	20	
Xylenes, Total	63.670	1.5	60.00	0	106	70	130	62.28	2.21	20	
Surr: 1,2-Dichloroethane-d4	23.970		25.00		95.9	78	125		0		
Surr: 4-Bromofluorobenzene	26.200		25.00		105	80	120		0		
Surr: Dibromofluoromethane	24.210		25.00		96.8	80	122		0		
Surr: Toluene-d8	25.430		25.00		102	80	120		0		

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| ND Not Detected at the Reporting Limit | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out | Calculations are based on raw values | |



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CLIENT: Geocon Consultants, Inc.
Work Order: N017595
Project: Estero Americano, E8721-02-34

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID: P151113MB3	SampType: MBLK	TestCode: 8260WATERP	Units: µg/L	Prep Date:	RunNo: 104157
Client ID: PBW	Batch ID: P15VW214	TestNo: EPA 8260B		Analysis Date: 11/13/2015	SeqNo: 2137944

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Ethylbenzene	ND	0.50									
m,p-Xylene	ND	1.0									
MTBE	ND	0.50									
o-Xylene	ND	0.50									
Toluene	ND	0.50									
Xylenes, Total	ND	1.5									
Surr: 1,2-Dichloroethane-d4	24.440		25.00		97.8	78	125				
Surr: 4-Bromofluorobenzene	24.910		25.00		99.6	80	120				
Surr: Dibromofluoromethane	24.650		25.00		98.6	80	122				
Surr: Toluene-d8	24.510		25.00		98.0	80	120				

Sample ID: N017595-001ADUP	SampType: DUP	TestCode: 8260WATERP	Units: µg/L	Prep Date:	RunNo: 104157
Client ID: ZZZZZZ	Batch ID: P15VW214	TestNo: EPA 8260B		Analysis Date: 11/13/2015	SeqNo: 2137950

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50						0	0	20	
Ethylbenzene	ND	0.50						0	0	20	
m,p-Xylene	ND	1.0						0	0	20	
MTBE	ND	0.50						0	0	20	
o-Xylene	ND	0.50						0	0	20	
Toluene	ND	0.50						0	0	20	
Xylenes, Total	ND	1.5						0	0	20	
Surr: 1,2-Dichloroethane-d4	25.180		25.00		101	78	125		0		
Surr: 4-Bromofluorobenzene	25.720		25.00		103	80	120		0		
Surr: Dibromofluoromethane	25.030		25.00		100	80	122		0		
Surr: Toluene-d8	25.150		25.00		101	80	120		0		

Qualifiers:

- | | | |
|---|--|--|
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ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 11/11/2015 Workorder: N017595
 Rep sample Temp (Deg C): 2.5 IR Gun ID: 2
 Temp Blank: Yes No
 Carrier name: Golden State Overnight
 Last 4 digits of Tracking No.: 1504 Packing Material Used: Bubble Wrap
 Cooling process: Ice Ice Pack Dry Ice Other None

Sample Receipt Checklist

- | | | | |
|---|---|--|---|
| 1. Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login?
Was Client notified? | Yes <input checked="" type="checkbox"/>
Yes <input type="checkbox"/> | No <input type="checkbox"/>
No <input type="checkbox"/> | NA <input type="checkbox"/>
NA <input checked="" type="checkbox"/> |

Comments The pH of sample was adjusted to less than 2.0

Checklist Completed B JAA PA 11/12/2015

Reviewed By:  11/18/15

ASSET Laboratories

WORK ORDER Summary

11-Nov-15

WorkOrder: N017595

Client ID: GEOCO01

Project: Estero Americano, E8721-02-34

QC Level: CT

Date Received: 11/11/2015

Comments: *lab to filter metals sample for CAM17 dissolved metals analysis. Use silica gel cleanup on TPH d/mo (TPHg/BTEX/MTBE)

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N017595-001A	B2-GW	11/10/2015 1:00:00 PM	11/18/2015	Groundwater	EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VW
			11/18/2015		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VW
N017595-001B			11/18/2015		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: SILICA GEL CLEANUP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			11/18/2015		EPA 8015B	DRO AND ORO WITH SILICA GEL CLEANUP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N017595-001C			11/18/2015		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			11/18/2015		EPA 6010B	DISSOLVED METALS BY ICP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			11/18/2015			DISSOLVED MERCURY PREP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			11/18/2015		EPA 7470A	DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N017595-002A	Trip Blank	11/10/2015	11/18/2015		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VW
N017595-003A	FOLDER		11/18/2015		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB



800-322-5555 www.gso.com

Ship From
GEOCON
RICK DAY
6671 BRISA ST.
LIVERMORE, CA 94550

Tracking #: 529671504

CPS



Ship To
ADVANCED TECHNOLOGY LABORATORIES, INC.
MARLON CARTIN
3151 W. POST RD.
LAS VEGAS, NV 89118

LVS
LAS VEGAS

A

COD: \$0.00
Weight: 0 lb(s)
Reference:

D89103B

Delivery Instructions:



Signature Type: REQUIRED

43825073

Print Date: 10/20/2015 4:00 PM

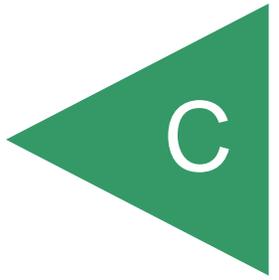
Package 2 of 2

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer. Securely attach this label to your package, do not cover the barcode.

APPENDIX



DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING B2		PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					ELEV. (MSL.) _____	DATE COMPLETED <u>11/10/2015</u>			
MATERIAL DESCRIPTION									
0				SM	Loose, dry, light brown, Silty sand with GRAVEL				
1									
2									
3									
4				ML	Dense, moist, medium brown to light brown, Silt with some CLAY				
5									
6									
7									
8									
9						Dense, increasing moisture, moist to wet, medium brown with gray, Silt/silty CLAY			
10									
11									
12				▼		Saturated hydropunched to 20 feet			
13									
14									
15						Had to emplace casing with hydropunch due to caving			
16									
17									
18									
19									
20									
BORING TERMINATED AT 20 FEET									
					Second boring was drilled to 14' adjacent to first due to weak recovery of groundwater. Both borings subject to caving without casing. Casing was used to sample groundwater and to tremmie with grout.				

Log of Boring B2, page 1 of 1



SAMPLE SYMBOLS			
	... SAMPLING UNSUCCESSFUL		... STANDARD PENETRATION TEST
	... DISTURBED OR BAG SAMPLE		... CHUNK SAMPLE
			... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.



State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
7329 Silverado Trail
Napa, CA 94558
(707) 944-5500
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



November 23, 2015

Wajahat Nyaz
California Department of Transportation
111 Grand Ave.
Oakland Ca. 94623

Subject: Final Lake or Streambed Alteration Agreement
Notification No. 1600-2015-0255-R3
State Route 1, Estero Americano Bridge Replacement Project

Dear Mr. Nyaz:

Enclosed is the final streambed Alteration Agreement (“Agreement”) for the State Route 1 Estero Americano Bridge Replacement Project (“Project”). Before the Department may issue an Agreement, it must comply with the California Environmental Quality Act (“CEQA”). In this case, the Department, acting as a responsible agency, filed a notice of determination (“NOD”) on November 23, 2015, based on information contained in the Negative Declaration the lead agency prepared for the Project.

Under CEQA, filing a NOD starts a 30-day period within which a party may challenge the filing agency’s approval of the project. You may begin your project before the 30-day period expires if you have obtained all necessary local, state, and federal permits or other authorizations. However, if you elect to do so, it will be at your own risk.

If you have any questions regarding this matter, please contact Melissa Escaron, Environmental Scientist at (925) 786-3045 or Melissa.escaron@wildlife.ca.gov .

Sincerely,

Craig J. Weightman
Environmental Program Manager
Bay Delta Region

cc: Christopher Pincetich; Christopher.pincetich@dot.ca.gov
Lieutenant Jones
Warden Stinson

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
BAY DELTA REGION
7329 SILVERADO TRAIL
NAPA, CALIFORNIA 94558
(707) 944-5500
WWW.WILDLIFE.CA.GOV



STREAMBED ALTERATION AGREEMENT
NOTIFICATION No. 1600-2015-0255-R3
State Route 1 Estero Americano Bridge Replacement Project

CALIFORNIA DEPARTMENT OF TRANSPORTATION

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and the California Department of Transportation (Permittee), as represented by Mr. Wajahat Nyaz, Project Manager.

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified CDFW on December 9, 2013 that Permittee intends to complete the project described herein.

WHEREAS, pursuant to FGC section 1603, CDFW has determined that the project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

WHEREAS, Permittee has reviewed the Agreement and accepts its terms and conditions, including the measures to protect fish and wildlife resources.

NOW THEREFORE, Permittee agrees to complete the project in accordance with the Agreement

PROJECT LOCATION

The California Department of Transportation (Permittee) proposes to replace the existing Estero Americano Bridge over Americano Creek on State Route (SR) 1 in Marin and Sonoma Counties. The Estero Americano Bridge Replacement Project is located in an unincorporated area on the Marin County and Sonoma County line about 1.5 miles east of Valley Ford on SR 1, south of Valley Ford Road. The project limits stretch from post mile (PM) 50.1 to 50.5 in Marin County and from PM 0.0 to 0.1 in Sonoma County.

PROJECT DESCRIPTION

The Permittee proposes to replace the existing 146-foot-long, 24-foot-wide bridge with one that is 266 feet long and 40 feet wide. The new bridge will be constructed slightly

east of the existing alignment. The roadway will also be widened and shifted slightly through the project limits in order to conform to the new bridge.

Prior to groundbreaking, Caltrans will shift all traffic onto the southbound lane of the existing bridge. The northbound lane will be used for staging and to construct the northbound lane of the new bridge and new roadway approaches east of the existing bridge. Caltrans will also modify the existing roadway and install embankments at both ends of the current bridge approaches. A temporary up to 15-foot wide access road will be constructed as needed across the north bank of Americano Creek to accommodate construction vehicles, for water diversion construction and bridge construction. No work aside from the construction and use of the access road will occur on the west side of the new bridge.

Following construction of the first half of the bridge, Caltrans will shift traffic onto the new bridge and northbound traffic lane and proceed to remove the existing bridge. The second half of the new bridge and roadway will then be constructed from areas within the creek and on the existing SR 1 southbound lane and embankment.

This Agreement does not authorize the use of pile driving equipment within CDFW jurisdiction. The new bridge pilings will be cast-in-drill-hole piles. Cofferdam installation will be accomplished by using vibratory hammers.

Trees will be trimmed the year prior to construction to avoid impacts to nesting birds, and the bridge will be replaced over a 2 year construction period.

PROJECT IMPACTS

Approximately 1.14 acres of riparian habitat will be impacted by the Project. Existing fish or wildlife resources the project could substantially adversely affect include:

- Nesting bird habitat
- California red-legged frog (CRLF) and habitat
- Western pond turtle habitat
- California central coast steelhead habitat
- Other fish species
- Aquatic Organisms
- Riparian habitat
- Other wildlife species

The adverse effects the project could have on the fish or wildlife resources identified above include:

- Take of sensitive terrestrial and avian species
- Temporary loss of habitat for sensitive species
- Disruption of bird nesting

- Temporary increase in turbidity and water quality degradation
- Short-term release of contaminants
- Loss of habitat on-site
- fill/loss of wetlands
- loss of channel bed
- Soil compaction
- Dewatering
- Increase in ambient noise
- change in lighting/shading on the water surface
- increase of bank erosion during construction
- increased turbidity
- disturbance from project activity
- introduction and or spread of invasive species
- increase in ambient noise
- increased disturbance from construction and operation

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

Permittee shall meet each administrative requirement described below.

- 1.1 Documentation at Project Site. Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to CDFW personnel, or personnel from another state, federal, or local agency upon request.
- 1.2 Providing Agreement to Persons at Project Site. Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the project at the project site on behalf of Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.
- 1.3 Notification of Conflicting Provisions. Permittee shall notify CDFW if Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, CDFW shall contact Permittee to resolve any conflict.
- 1.4 Project Site Entry. Permittee agrees that CDFW personnel may enter the project site, at any time to verify compliance with the Agreement.

2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each measure listed below. The below measures pertain to work located within CDFW 1602 jurisdiction only. This Agreement authorizes associated utilities relocations within CDFW 1602 jurisdiction.

- 2.1 In-channel work and any diversion necessary shall occur only between June 15 and October 15; however non-ground disturbing vegetation removal is authorized outside of this work window to avoid impacts to nesting birds. This work window can be extended via email and written CDFW approval.
- 2.2 At least 30-days prior to commencing Project activities covered by this Agreement, the Permittee shall submit to CDFW, for review and approval, the qualifications for a number of biologists (Qualified Biologist) that shall oversee the implementation of the conditions in this Agreement. The Qualified Biologists shall communicate to the Resident Engineer when any activity is not in compliance with this Agreement and the Resident Engineer shall immediately stop the activity that is not in compliance with this Agreement.
- 2.3 This Agreement does not authorize pile driving activities.
- 2.4 Before the onset of construction activities, a Qualified Biologist shall conduct an education program for all construction personnel. At a minimum the training will include a description of California red legged frog (CRLF), steelhead, Western pond turtle, and migratory birds and their habitats; the occurrence of these species within the Project site; an explanation of their state and federal statuses; avoidance and minimization measures; habitats as they relate to the Project site; and boundaries within which construction may occur. A fact sheet conveying this information will be prepared and distributed to all construction crews and Project personnel entering the Project site. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all the avoidance and minimization measures.
- 2.5 Prior to the start of construction Environmentally Sensitive Areas (ESAs) shall be clearly delineated using high-visibility orange fencing to protect sensitive habitats. The ESA fencing will remain in place throughout the duration of the Project. The final Project plans will depict all locations where ESA fencing will be installed and how it will be installed. The bid solicitation package special provisions will clearly describe acceptable fencing material and prohibited construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within ESAs. ESA fencing shall be erected as directed by a Qualified Biologist.

- 2.6 A Qualified Biologist shall conduct clearance surveys and be on-site during all activities that may result in the take of CRLF. The Qualified Biologist shall stop work through the Resident Engineer if activities are identified that may result in the take of CRLF.
- 2.7 CRLF will be captured by hand, dip net, or other USFWS-approved methodology; transported by hand, dip net, or temporary holding container; and relocated to a release site as soon as practicable the same day of capture. Handling of CRLF will be minimized to the maximum extent practicable. Holding/ transporting containers and dip nets will be thoroughly cleaned and disinfected prior to entering the work site and will be rinsed with fresh water onsite immediately prior to usage unless doing so will result in the injury or death of the animal(s) due to the time delay.
- 2.8 A Qualified Biologist shall conduct pre-construction surveys for nesting birds no more than one week prior to construction. Surveys shall consist of multiple days of observations. If nests are found the Qualified Biologist shall establish an appropriate buffer to be in compliance with Migratory Bird Treaty Act (MBTA) and Fish and Game Code 3503. The Qualified Biologist shall perform at least two hours of pre-construction monitoring of the nest to characterize "typical" bird behavior. The Qualified Biologist shall monitor the nesting birds and shall increase the buffer if the Qualified Biologist determines the birds are showing signs of unusual or distressed behavior by Project activities. Atypical nesting behaviors which may cause reproductive harm include, but are not limited to, defensive flights/vocalizations directed towards Project personnel, standing up from a brooding position, and flying away from the nest. The Qualified Biologist shall have authority, through the Resident Engineer, to order the cessation of all Project activities if the nesting birds exhibit atypical behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young) until an appropriate buffer is established. To prevent encroachment, the established buffer(s) shall be clearly marked by high visibility material. The established buffer(s) shall remain in effect until the young have fledged or the nest has been abandoned as confirmed by the Qualified Biologist. Any sign of nest abandonment shall be reported to CDFW within 48 hours.
- 2.9 To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than 2-feet deep will be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks at an angle no greater than 30 degrees. Before such holes or trenches are filled they must be thoroughly inspected for trapped animals. All replacement pipes, culverts, or similar structures stored in the action area overnight will be inspected before they are subsequently moved, capped and/or buried.

- 2.10 Block nets or mesh screens shall be used to exclude fish from the creek diversion pipeline and shall be checked at least twice daily to ensure they are effectively excluding fish from entering the pipe and to remove debris that may clog the nets and cause them to fail.
- 2.11 Fish relocation in the dewatered area shall be conducted by backpack electrofishing, seine and/or dip net, and then transported and released to suitable habitat. All juvenile fish shall be released upstream of the construction area. If smolts are captured they shall be released immediately downstream of the lower cofferdam where they shall be allowed to voluntarily continue their downstream migration to the ocean.
- 2.12 Permittee shall monitor in-channel activities and performance of sediment control or detention devices for the purpose of identifying and reconciling any condition that could result in take of listed salmonids.
- 2.13 If necessary, pumps with 0.2 inch mesh screens shall be used to remove standing water from the dewatered section of the creek to water storage containers or a temporary detention or filtration basin away from the stream channel to prevent direct discharge of this water to the creek. Fish capture and relocation efforts shall continue as needed during pumping activities to ensure no salmonids are left behind in the drying channel.
- 2.14 A record shall be maintained of all fish rescued and moved. The record shall include the date of capture and relocation, the method of capture, the location of the relocation site in relation to the project site, and the number and species of fish captured and relocated. The record shall be provided to CDFW within two weeks of the completion of the work season or project, whichever comes first.
- 2.15 Handling of salmonids shall be minimized. When handling is necessary, Permittee shall always wet hands or nets prior to touching fish.
- 2.16 Permittee shall temporarily hold fish in cool, shaded, aerated water in a flow-through live car. Permittee shall protect fish from jostling and noise and shall not remove fish from this container until time of release.
- 2.17 Permittee shall measure air and water temperatures periodically. A thermometer shall be placed in holding containers and, if necessary, periodically conduct partial water changes to maintain a stable water temperature. If water temperature reaches or exceeds 18 °C, fish shall be released and rescue operations ceased. Permittee shall conduct relocation activities in the morning when the temperatures are cooler.

- 2.18 Overcrowding in containers shall be avoided by having at least two containers and segregating young-of-year (YOY) fish from larger age-classes to avoid predation. Larger amphibians shall be placed in the container with larger fish.
- 2.19 Permittee shall conduct work defined in the above Project Description, and within the Project area, during periods of dry weather. The Project area is defined as the bed, bank, channel, and associated wetland habitat. The Permittee shall monitor forecasted precipitation. When $\frac{1}{4}$ inch or more of precipitation is forecasted to occur, the Permittee shall stop work before precipitation commences. No Project activities may be started if its associated erosion control measures cannot be completed prior to the onset of precipitation. After any storm event, the Permittee shall inspect all sites currently under construction and all sites scheduled to begin construction within the next 72 hours for erosion and sediment problems and take corrective action as needed. Seventy-two hour weather forecasts from National Weather Service shall be consulted and work shall not start back up until runoff ceases and there is less than a 30% forecast for precipitation for the following 24-hour period.
- 2.20 Permittee shall utilize erosion control measures throughout all phases of operation where sediment runoff from exposed slopes threatens to enter waterways. At no time shall silt laden runoff be allowed to enter the stream or directed to where it may enter the stream. Erosion control installations shall be monitored for effectiveness and shall be repaired or replaced as recommended by a Qualified Biologist or Water Quality Monitor to the Resident Engineer. As needed to prevent sediment transport, Permittee shall deploy soil stabilizer such as hydroseeding, netting, erosion control mats, mulch, fiber rolls, silt fences, check dams, and flow velocity dissipation devices. Permittee shall stabilize and equip construction site entrances and exits with tire washing capability. Materials containing monofilament or plastic shall not be used. Erosion and sediment control measures shall be installed prior to unseasonable rain storms.
- 2.21 All disturbed areas shall be re-graded and hydroseeded. Hydroseed shall not contain invasive exotic plant species. Prohibited exotic plant species include those identified in the California Exotic Pest Plant Council's database, which is accessible at: <http://www.calipc.org/ip/inventory/weedlist.php>.
- 2.22 Staging and storage areas for equipment, materials, fuels, lubricants and solvents, shall be located outside of the creek channel and banks. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the creek shall be positioned over drip pans. Any equipment or vehicles driven and/or operated within or adjacent to the stream must be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life.

- 2.23 All concrete used shall be excluded from the wetted channel or areas where it may come into contact with water for a period of 30 days after it is poured/sprayed. During that time the concrete shall be kept moist and runoff from the concrete shall not be allowed to enter the stream. Commercial sealants may be applied to the poured concrete surface where difficulty in excluding flow for a long period may occur. If sealant is used, water shall be excluded from the site until the sealant is cured.
- 2.24 Permittee shall construct rock slope protection (RSP) with suitable non-erodible materials that will withstand wash out. The RSP shall extend above the normal high-water mark. Only clean material such as, rock riprap that is free of trash, debris and deleterious material shall be used as bank stabilization. Asphalt shall not be considered an acceptable material.
- 2.25 Un-grouted rock slope protection and energy dissipater materials shall consist of clean rock, competent for the application, sized and properly installed to resist washout. RSP slopes shall be supported with competent boulders keyed into a footing trench with a depth sufficient to properly seat the footing course boulders and prevent instability (typically at least 1/3 diameter of footing course boulders). Voids between rocks shall be planted with riparian species native to the area.
- 2.26 Rock slope protection slopes and footing trenches shall feature an underlayment of appropriate grade geo-textile fabric, on slopes less than 1:1, or gravel blanket, on slopes greater than 1:1.
- 2.27 Only clean rocks and boulders shall be used for the project unless specified otherwise with the design plans and project description. No broken concrete, asphalt or other construction waste materials shall be used as rock slope protection.
- 2.28 Refueling of mobile construction equipment and vehicles shall not occur within 50 feet of any water body, or anywhere that spilled fuel could drain to a water body. Refueling of stationary equipment requiring breakdown and setup to move will remain in place. All equipment shall be refueled with appropriate drip pans, absorbent pads, and water quality Best Management Practices. Equipment and vehicles operating in the Project site shall be checked and maintained daily to prevent leaks of fuels, lubricants, or other liquids.
- 2.29 Permittee shall comply with all applicable state and federal laws, including the California and Federal Endangered Species Act. This Agreement does not authorize the take of any state or federally endangered listed species. Liability for any take or incidental take of such species remains the responsibility of the Permittee for the duration of the Project. Any unauthorized take of listed species may result in prosecution and nullification of the Agreement. This

Agreement does not authorize the capture or relocation of Fully Protected Species.

3. Onsite and Offsite Mitigation

- 3.1 Permittee shall submit an On-site Restoration Plan for temporary impacts at least 90 days prior to the start of construction for review and written approval. The On-site Restoration Plan shall include a plant palette of native species to be used, success criteria, a monitoring and reporting schedule, and corrective actions to be taken if mitigation measures do not meet the approved success criteria. All plantings shall be derived from locally available genotypes, if available at the time of plant installation. The Permittee shall monitor the survival and vigor of on-site plantings for a period of 5 years to ensure attainment of 75% survivorship. Permittee shall control invasive species as needed to ensure attainment of 75% survivorship after 5 years.
- 3.2 At the issuance of this Agreement, CDFW has not approved a Mitigation Plan for permanent impacts with an off-site mitigation location. At least 90 days prior to commencement of construction the Permittee shall submit for review and written approval, a detailed Habitat Mitigation Plan for plant and tree mitigation resulting from permanent impacts that cannot be accommodated on-site. The Habitat Mitigation Plan shall mitigate permanent riparian habitat impacts at a minimum of a 3:1 acreage ratio. Mitigation shall be based on all trees regardless of diameter at breast height. The Habitat Mitigation Plan shall outline the habitat and trees impacted on-site and include proposed mitigation locations, a plant palette of native species to be used, success criteria, a monitoring a reporting schedule, and corrective actions to be taken if mitigation measures do not meet the approved success criteria. The Permittee shall monitor the survival and vigor of off-site plantings for a period of 5 years to ensure attainment of 75% survivorship. Off-site mitigation may include a combination of habitat restoration, creation, enhancement, and/or preservation of habitat that will support a similar riparian plant community to that found at the project site. All plantings shall be derived from locally available genotypes. Any off-site mitigation may need to be authorized by separate agreement.

CONTACT INFORMATION

Any communication that Permittee or CDFW submits to the other shall be in writing and any communication or documentation shall be delivered to the address below by U.S. mail, fax, or email, or to such other address as Permittee or CDFW specifies by written notice to the other.

To Permittee:

California Department of Transportation

Mr. Wajahat Nyaz
111 Grand Ave
Oakland, Ca
Wajahat.nyaz@dot.ca.gov

To CDFW:

California Department of Fish and Wildlife
Bay Delta Region
7329 Silverado Trail
Napa, California 94558
Attn: Lake and Streambed Alteration Program – Melissa Escaron
Notification #1600-2015-0255-R3
Fax (707) 944-5553
Melissa.escaron@wildlife.ca.gov

LIABILITY

Permittee shall be solely liable for any violations of the Agreement, whether committed by Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the project or any activity related to it that the Agreement authorizes.

This Agreement does not constitute CDFW's endorsement of, or require Permittee to proceed with the project. The decision to proceed with the project is Permittee's alone.

SUSPENSION AND REVOCATION

CDFW may suspend or revoke in its entirety the Agreement if it determines that Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

Before CDFW suspends or revokes the Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide Permittee an opportunity to correct any deficiency before CDFW suspends or revokes the Agreement, and include instructions to Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused CDFW to issue the notice.

ENFORCEMENT

Nothing in the Agreement precludes CDFW from pursuing an enforcement action against Permittee instead of, or in addition to, suspending or revoking the Agreement.

Nothing in the Agreement limits or otherwise affects CDFW's enforcement authority or that of its enforcement personnel.

OTHER LEGAL OBLIGATIONS

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from obtaining any other permits or authorizations that might be required under other federal, state, or local laws or regulations before beginning the project or an activity related to it.

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the FGC including, but not limited to, FGC sections 2050 et seq. (threatened and endangered species), 3503 (bird nests and eggs), 3503.5 (birds of prey), 5650 (water pollution), 5652 (refuse disposal into water), 5901 (fish passage), 5937 (sufficient water for fish), and 5948 (obstruction of stream).

Nothing in the Agreement authorizes Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

AMENDMENT

CDFW may amend the Agreement at any time during its term if CDFW determines the amendment is necessary to protect an existing fish or wildlife resource.

Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by CDFW and Permittee. To request an amendment, Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by Permittee in writing, as specified below, and thereafter CDFW approves the transfer or assignment in writing.

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, Permittee shall submit

to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

EXTENSIONS

In accordance with FGC section 1605(b), Permittee may request one extension of the Agreement, provided the request is made prior to the expiration of the Agreement's term. To request an extension, Permittee shall submit to CDFW a completed CDFW "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). CDFW shall process the extension request in accordance with FGC 1605(b) through (e).

If Permittee fails to submit a request to extend the Agreement prior to its expiration, Permittee must submit a new notification and notification fee before beginning or continuing the project the Agreement covers (Fish & G. Code, § 1605, subd. (f)).

EFFECTIVE DATE

The Agreement becomes effective on the date of CDFW's signature, which shall be: 1) after Permittee's signature; 2) after CDFW complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable FGC section 711.4 filing fee listed at http://www.wildlife.ca.gov/habcon/ceqa/ceqa_changes.html.

TERM

This Agreement shall expire on December 31, 2019 unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

AUTHORITY

If the person signing the Agreement (signatory) is doing so as a representative of Permittee, the signatory hereby acknowledges that he or she is doing so on Permittee's behalf and represents and warrants that he or she has the authority to legally bind Permittee to the provisions herein.

AUTHORIZATION

This Agreement authorizes only the project described herein. If Permittee begins or completes a project different from the project the Agreement authorizes, Permittee may

be subject to civil or criminal prosecution for failing to notify CDFW in accordance with FGC section 1602.

CONCURRENCE

The undersigned accepts and agrees to comply with all provisions contained herein.

**FOR CALIFORNIA DEPARTMENT OF
TRANSPORTATION**



Wajahat Nyaz
Project Manager



Date

FOR DEPARTMENT OF FISH AND WILDLIFE



Craig J. Weightman
Environmental Program Manager



Date

Prepared by: Melissa Escaron
Staff Environmental Scientist

Date Sent: October 23, 2015

FOR DEPARTMENT USE ONLY

Date Received	Amount Received	Amount Due	Date Complete	Notification No.
7/27/2015	\$ 4912.25	\$		1600-2015-0255-3



✓#05-938323

STATE OF CALIFORNIA

DEPARTMENT OF FISH AND WILDLIFE

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

ESCARON

LT. JONES

Wm Stinson



Complete EACH field, unless otherwise indicated, following the enclosed instructions and submit ALL required enclosures. Attach additional pages, if necessary.

1. APPLICANT PROPOSING PROJECT

Name	Wajahat Nyaz, Project Manager		Fish & Wildlife
Business/Agency	California Department of Transportation, District 4		JUL 27 2015
Street Address	111 Grand Avenue		
City, State, Zip	Oakland, CA 94623		Napa
Telephone	(510) 286-5119	Fax	
Email	Wajahat.Nyaz@dot.ca.gov		

2. CONTACT PERSON (Complete only if different from applicant)

Name	Christopher Pincetich		
Street Address	111 Grand Avenue		
City, State, Zip	Oakland, CA 94623		
Telephone	(510) 286-5649	Fax	(510) 286-5376
Email	christopher.pincetich@dot.ca.gov		

3. PROPERTY OWNER (Complete only if different from applicant)

Name			
Street Address			
City, State, Zip			
Telephone		Fax	
Email			

4. PROJECT NAME AND AGREEMENT TERM

A. Project Name		Estero Americano Bridge Replacement		
B. Agreement Term Requested		<input checked="" type="checkbox"/> Regular (5 years or less) <input type="checkbox"/> Long-term (greater than 5 years)		
C. Project Term		D. Seasonal Work Period		E. Number of Work Days
Beginning (year)	Ending (year)	Start Date (month/day)	End Date (month/day)	
2016	2018	April 15	November 15	
				300

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

5. AGREEMENT TYPE

Check the applicable box. If box B, C, D, or E is checked, complete the specified attachment.

A.	<input checked="" type="checkbox"/> Standard (Most construction projects, excluding the categories listed below)
B.	<input type="checkbox"/> Gravel/Sand/Rock Extraction (Attachment A) Mine I.D. Number: _____
C.	<input type="checkbox"/> Timber Harvesting (Attachment B) THP Number: _____
D.	<input type="checkbox"/> Water Diversion/Extraction/Impoundment (Attachment C) SWRCB Number: _____
E.	<input type="checkbox"/> Routine Maintenance (Attachment D)
F.	<input type="checkbox"/> CDFW Fisheries Restoration Grant Program (FRGP) FRGP Contract Number _____
G.	<input type="checkbox"/> Master
H.	<input type="checkbox"/> Master Timber Harvesting

6. FEES

Please see the current fee schedule to determine the appropriate notification fee. Itemize each project's estimated cost and corresponding fee. *Note: The Department may not process this notification until the correct fee has been received.*

A. Project		B. Project Cost	C. Project Fee
1	Estero Americano Bridge Replacement	\$10,000,000	\$4,912.25
2			
3			
4			
5			
		D. Base Fee (if applicable)	N/A
		E. TOTAL FEE ENCLOSED	\$4,912.25

7. PRIOR NOTIFICATION OR ORDER

A. Has a notification previously been submitted to, or a Lake or Streambed Alteration Agreement previously been issued by, the Department for the project described in this notification?

Yes (Provide the information below) No

Applicant: _____ Notification Number: _____ Date: _____

B. Is this notification being submitted in response to an order, notice, or other directive ("order") by a court or administrative agency (including the Department)?

No Yes (Enclose a copy of the order, notice, or other directive. If the directive is not in writing, identify the person who directed the applicant to submit this notification and the agency he or she represents, and describe the circumstances relating to the order.)

Continued on additional page(s)

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

8. PROJECT LOCATION

A. Address or description of project location.

(Include a map that marks the location of the project with a reference to the nearest city or town, and provide driving directions from a major road or highway)

The proposed Project is located approximately 2 miles east of the community of Valley Ford on State Route 1 at Sonoma County Post Mile 0.0/0.1 and Marin County Post Mile 50.1/50.5, south of the intersection of State Route 1 and Valley Ford Road in unincorporated Sonoma and Marin Counties. Figure 1, Project Location (see Supplemental Information, Appendix A) illustrates the Project vicinity and location.

Driving directions from Santa Rosa: 1) HWY 101 southbound; 2) take exit 481 to HWY 116 west, travel 1.5 miles; 3) left on Stony Point Road, travel 1.5 miles; 4) right on Roblar Road, travel 6.5 miles; 5) right on Valley Ford Road, travel 3.3 miles; 6) left on HWY 1, travel 0.2 mile to the Estero Americano Bridge.

Continued on additional page(s)

B. River, stream, or lake affected by the project. **Americano Creek**

C. What water body is the river, stream, or lake tributary to? **N/A**

D. Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts? Yes No Unknown

E. County **Sonoma and Marin (Americano Creek defines the county division line)**

F. USGS 7.5 Minute Quad Map Name	G. Township	H. Range	I. Section	J. ¼ Section
Valley Ford	NA	NA	NA	

Continued on additional page(s)

K. Meridian (check one) Humboldt Mt. Diablo San Bernardino

L. Assessor's Parcel Number(s)

NA. Project takes place entirely within Caltrans right of way.

Continued on additional page(s)

M. Coordinates (If available, provide at least latitude/longitude or UTM coordinates and check appropriate boxes)

Latitude/Longitude	Latitude: N 38.313442	Longitude: W -122.897390	
	<input type="checkbox"/> Degrees/Minutes/Seconds	<input checked="" type="checkbox"/> Decimal Degrees	<input type="checkbox"/> Decimal Minutes
UTM	Easting:	Northing:	<input type="checkbox"/> Zone 10 <input type="checkbox"/> Zone 11
Datum used for Latitude/Longitude or UTM	<input type="checkbox"/> NAD 27		<input checked="" type="checkbox"/> NAD 83 or WGS 84

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

9. PROJECT CATEGORY AND WORK TYPE *(Check each box that applies)*

PROJECT CATEGORY	NEW CONSTRUCTION	REPLACE EXISTING STRUCTURE	REPAIR/MAINTAIN EXISTING STRUCTURE
Bank stabilization – bioengineering/recontouring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bank stabilization – rip-rap/retaining wall/gabion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boat dock/pier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boat ramp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bridge	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Channel clearing/vegetation management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Culvert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Debris basin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diversion structure – weir or pump intake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Filling of wetland, river, stream, or lake	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geotechnical survey	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Habitat enhancement – revegetation/mitigation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Levee	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low water crossing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Road/trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sediment removal – pond, stream, or marina	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Storm drain outfall structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temporary stream crossing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Utility crossing : Horizontal Directional Drilling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jack/bore	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Open trench	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

10. PROJECT DESCRIPTION

- A. Describe the project in detail. Photographs of the project location and immediate surrounding area should be included.
- Include any structures (e.g., rip-rap, culverts, or channel clearing) that will be placed, built, or completed in or near the stream, river, or lake.
 - Specify the type and volume of materials that will be used.
 - If water will be diverted or drafted, specify the purpose or use.

Enclose diagrams, drawings, plans, and/or maps that provide all of the following: site specific construction details; the dimensions of each structure and/or extent of each activity in the bed, channel, bank or floodplain; an overview of the entire project area (i.e., "bird's-eye view") showing the location of each structure and/or activity, significant area features, and where the equipment/machinery will enter and exit the project area.

See attached Supplemental Information, Form Field 10.A: Project Description section; Appendix B, Photographs; and Appendix C, Project Design Plans.

Continued on additional page(s)

- B. Specify the equipment and machinery that will be used to complete the project.

See attached Supplemental Information, Form Field 10.B: Project Construction Equipment section, and Appendix D, Table D-1, Project Equipment and Summary of Exposure to Potential Adverse Effects.

Continued on additional page(s)

- C. Will water be present during the proposed work period (specified in box 4.D) in the stream, river, or lake (specified in box 8.B).

Yes No (Skip to box 11)

- D. Will the proposed project require work in the wetted portion of the channel?

Yes (Enclose a plan to divert water around work site)
 No

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

11. PROJECT IMPACTS

A. Describe impacts to the bed, channel, and bank of the river, stream, or lake, and the associated riparian habitat. Specify the dimensions of the modifications in length (linear feet) and area (square feet or acres) and the type and volume of material (cubic yards) that will be moved, displaced, or otherwise disturbed, if applicable.

See attached Supplemental Information, Form Field 11: Project Impacts section.

Continued on additional page(s)

B. Will the project affect any vegetation? Yes (Complete the tables below) No

Vegetation Type	Temporary Impact	Permanent Impact
Riparian willow thicket (also identified below as Tree Species)	Linear feet: _____ Total area: _____	Linear feet: _____ Total area: 1.14 acres
	Linear feet: _____ Total area: _____	Linear feet: _____ Total area: _____

Tree Species	Number of Trees to be Removed	Trunk Diameter (range)
Willow spp. (Salix laevigata & Salix lasiolepis)	1.14 acres surface area	1"-13"
Oregon ash (Fraxinus latifolia)	4	4"-6"
Klamath hawthorn (Crataegus gaylussacia)	4	4"-6"

Continued on additional page(s)

C. Are any special status animal or plant species, or habitat that could support such species, known to be present on or near the project site?

Yes (List each species and/or describe the habitat below) No Unknown

See Supplemental Information, Form Field 11.C: Special-Status Species Impacts section.

Continued on additional page(s)

D. Identify the source(s) of information that supports a "yes" or "no" answer above in Box 11.C.

USFWS BO for the Proposed Estero Americano Bridge Replacement Project (see Apdx. F)

Continued on additional page(s)

E. Has a biological study been completed for the project site?

Yes (Enclose the biological study) No

Note: A biological assessment or study may be required to evaluate potential project impacts on biological resources.

F. Has a hydrological study been completed for the project or project site?

Yes (Enclose the hydrological study) No

Note: A hydrological study or other information on site hydraulics (e.g., flows, channel characteristics, and/or flood recurrence intervals) may be required to evaluate potential project impacts on hydrology.

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

12. MEASURES TO PROTECT FISH, WILDLIFE, AND PLANT RESOURCES

A. Describe the techniques that will be used to prevent sediment from entering watercourses during and after construction.

See Supplemental Information, Form Fields 12.A and 12.B: Measures to Protect Fish, Wildlife, and Plant Resources (Avoidance and Minimization Measures) section, particularly the Caltrans General AMMs and Water Quality AMMs subsections.

Continued on additional page(s)

B. Describe project avoidance and/or minimization measures to protect fish, wildlife, and plant resources.

See Supplemental Information, Form Fields 12.A and 12.B: Measures to Protect Fish, Wildlife, and Plant Resources (Avoidance and Minimization Measures) section, including the Caltrans General AMMs, Special-Status Plant AMMs, and Special-Status Wildlife Species AMMs subsections.

Continued on additional page(s)

C. Describe any project mitigation and/or compensation measures to protect fish, wildlife, and plant resources.

See Supplemental Information, Form Field 12.C: Mitigation Measures to Protect Fish, Wildlife, and Plant Resources section.

Continued on additional page(s)

13. PERMITS

List any local, state, and federal permits required for the project and check the corresponding box(es). Enclose a copy of each permit that has been issued.

- A. Coastal Development Permit Applied Issued
- B. ACOE 404 Permit Applied Issued
- C. Water Board 401 Permit Applied Issued
- D. Unknown whether local, state, or federal permit is needed for the project. (Check each box that applies)

Continued on additional page(s)

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

14. ENVIRONMENTAL REVIEW

<p>A. Has a draft or final document been prepared for the project pursuant to the California Environmental Quality Act (CEQA), National Environmental Protection Act (NEPA), California Endangered Species Act (CESA) and/or federal Endangered Species Act (ESA)?</p> <p><input checked="" type="checkbox"/> Yes (Check the box for each CEQA, NEPA, CESA, and ESA document that has been prepared and enclose a copy of each) <input type="checkbox"/> No (Check the box for each CEQA, NEPA, CESA, and ESA document listed below that will be or is being prepared)</p>			
<input type="checkbox"/> Notice of Exemption <input checked="" type="checkbox"/> Initial Study <input checked="" type="checkbox"/> Negative Declaration <input type="checkbox"/> THP/ NTMP	<input type="checkbox"/> Mitigated Negative Declaration <input type="checkbox"/> Environmental Impact Report <input type="checkbox"/> Notice of Determination (Enclose) <input type="checkbox"/> Mitigation, Monitoring, Reporting Plan	<input checked="" type="checkbox"/> NEPA document (type): <u>Categorical Exclusion</u> <input checked="" type="checkbox"/> CESA document (type): <u>Initial Study _ Neg. Dec.</u> <input checked="" type="checkbox"/> ESA document (type): <u>Biological Opinion</u>	
<p>B. State Clearinghouse Number (if applicable)</p>		<p>N/A</p>	
<p>C. Has a CEQA lead agency been determined?</p>		<p><input checked="" type="checkbox"/> Yes (Complete boxes D, E, and F) <input type="checkbox"/> No (Skip to box 14.G)</p>	
<p>D. CEQA Lead Agency</p>		<p>Caltrans</p>	
<p>E. Contact Person</p>		<p>Frances Malamud-Roam</p>	
		<p>F. Telephone Number</p>	
		<p>(510) 286-5376</p>	
<p>G. If the project described in this notification is part of a larger project or plan, briefly describe that larger project or plan.</p> <p>The Project is not a part of a larger project or plan.</p> <p align="right"><input type="checkbox"/> Continued on additional page(s)</p>			
<p>H. Has an environmental filing fee (Fish and Game Code section 711.4) been paid?</p> <p><input checked="" type="checkbox"/> Yes (Enclose proof of payment) <input type="checkbox"/> No (Briefly explain below the reason a filing fee has not been paid)</p> <p>A check for the filing fee is included as a part of this submittal.</p> <p><i>Note: If a filing fee is required, the Department may not finalize a Lake or Streambed Alteration Agreement until the filing fee is paid.</i></p>			

15. SITE INSPECTION

<p>Check one box only.</p> <p><input checked="" type="checkbox"/> In the event the Department determines that a site inspection is necessary, I hereby authorize a Department representative to enter the property where the project described in this notification will take place at any reasonable time, and hereby certify that I am authorized to grant the Department such entry.</p> <p><input type="checkbox"/> I request the Department to first contact (insert name) _____ at (insert telephone number) _____ to schedule a date and time to enter the property where the project described in this notification will take place. I understand that this may delay the Department's determination as to whether a Lake or Streambed Alteration Agreement is required and/or the Department's issuance of a draft agreement pursuant to this notification.</p>
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NOTIFICATION OF LAKE OR STREAMBED ALTERATION

16. DIGITAL FORMAT

Is any of the information included as part of the notification available in digital format (i.e., CD, DVD, etc.)?

Yes (Please enclose the information via digital media with the completed notification form)

No

17. SIGNATURE

I hereby certify that to the best of my knowledge the information in this notification is true and correct and that I am authorized to sign this notification as, or on behalf of, the applicant. I understand that if any information in this notification is found to be untrue or incorrect, the Department may suspend processing this notification or suspend or revoke any draft or final Lake or Streambed Alteration Agreement issued pursuant to this notification. I understand also that if any information in this notification is found to be untrue or incorrect and the project described in this notification has already begun, I and/or the applicant may be subject to civil or criminal prosecution. I understand that this notification applies only to the project(s) described herein and that I and/or the applicant may be subject to civil or criminal prosecution for undertaking any project not described herein unless the Department has been separately notified of that project in accordance with Fish and Game Code section 1602 or 1611.

Wajahat
Signature of Applicant or Applicant's Authorized Representative

7/23/2015
Date

WAJAHAT NYAZ
Print Name

NOTICE OF DETERMINATION

TO: Office of Planning and Research
Post Office Box 3044
Sacramento, California 95812-3044

FROM: California Department of Fish and Wildlife
Bay Delta Region
7329 Silverado Trail
Napa, California 94558

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

PROJECT TITLE: State Route 1, Estero Americano Bridge Replacement Project

STATE CLEARINGHOUSE NUMBER: 20114102047

LEAD AGENCY: California Department of Transportation
CONTACT: Wajahat Nyaz, (510) 286-5119

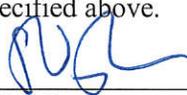
RESPONSIBLE AGENCY: California Department of Fish and Wildlife
CONTACT: Melissa Escaron, (925)786-3045

PROJECT DESCRIPTION / LOCATION: Caltrans proposes to replace an existing bridge over Estero Americano on State Route 1. The Project is located on State Route 1, 1.5 miles east of Valley Ford in an unincorporated area on the Marin and Sonoma County line. The California Department of Fish and Wildlife is executing a Lake and Streambed Alteration Agreement Number 1600-2015-0255-3 pursuant to Section 1602 of the Fish and Game Code to the project Applicant, California Department of Transportation.

This is to advise that the California Department of Fish and Wildlife as a Responsible Agency approved the project described above on November 23, 2015 and has made the following determinations regarding the above described project pursuant to section 15096 (i).

1. The project **will not** have a significant effect on the environment.
2. CDFW considered the Negative Declaration as previously prepared for this project by the Lead Agency.

This is to certify that a copy of the Negative Declaration prepared for this project is available to the general public and may be reviewed at: <http://www.dot.ca.gov/dist4/envdocs.htm>. Please contact the lead agency person specified above.



Craig J. Weightman
Environmental Program Manager
Bay Delta Region

November 23, 2015
Date

Date Received for Filing: _____

NEPA/CEQA RE-VALIDATION FORM

DIST./CO./RTE.	04/MRN & SON/1
PM/PM	MRN 50.1-50.5/SON 0.0-0.1
E.A. or Fed-Aid Project No.	04-20950 / 0412000116
Other Project No. (specify)	
PROJECT TITLE	Estero Americano Bridge Replacement Project
ENVIRONMENTAL APPROVAL TYPE	ISND/CE
DATE APPROVED	12/15/14
REASON FOR CONSULTATION (23 CFR 771.129)	<i>Check reason for consultation:</i> <input checked="" type="checkbox"/> Project proceeding to next major federal approval <input checked="" type="checkbox"/> Change in scope, setting, effects, mitigation measures, requirements <input type="checkbox"/> 3-year timeline (EIS only) <input type="checkbox"/> N/A (Re-Validation for CEQA only)
DESCRIPTION OF CHANGED CONDITIONS	There have been no project changes. A revised ECR is attached.

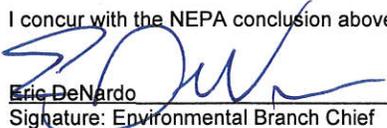
NEPA CONCLUSION - VALIDITY

Based on an examination of the changed conditions and supporting information:

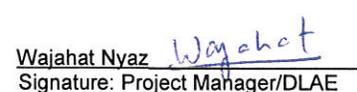
- The original environmental document or CE remains valid. No further documentation will be prepared.
- The original environmental document or CE is in need of updating; further documentation has been prepared and is included on the continuation sheet(s) or is attached. With this additional documentation, the original ED or CE remains valid.
 Additional public review is warranted (23 CFR 771.111(h)(3)) Yes No
- The original document or CE is no longer valid.
 Additional public review is warranted (23 CFR 771.111(h)(3)) Yes No
 Supplemental environmental document is needed. Yes No
 New environmental document is needed. Yes No (If "Yes," specify type: _____)

CONCURRENCE WITH NEPA CONCLUSION

I concur with the NEPA conclusion above.


 Eric DeNardo
 Signature: Environmental Branch Chief

6/13/16
 Date


 Wajahat Nyaz
 Signature: Project Manager/DLAE

6/13/16
 Date

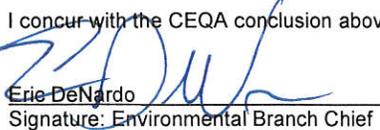
CEQA CONCLUSION: (Only mandated for projects on the State Highway System.)

Based on an examination of the changed conditions and supporting information, the following conclusion has been reached regarding appropriate CEQA documentation:

- Original document remains valid. No further documentation is necessary.
- Only minor technical changes or additions to the previous document are necessary. An addendum has been or will be prepared and is included on the continuation sheets or will be attached. It need not be circulated for public review. (CEQA Guidelines, §15164)
- Changes are substantial, but only minor additions or changes are necessary to make the previous document adequate. A Supplemental environmental document will be prepared, and it will be circulated for public review. (CEQA Guidelines, §15163)
- Changes are substantial, and major revisions to the current document are necessary. A Subsequent environmental document will be prepared, and it will be circulated for public review. (CEQA Guidelines, §15162) (Specify type of subsequent document, e.g., Subsequent FEIR:)
- The CE is no longer valid. New CE is needed. Yes No

CONCURRENCE WITH CEQA CONCLUSION

I concur with the CEQA conclusion above.


 Eric DeNardo
 Signature: Environmental Branch Chief

6/13/16
 Date


 Wajahat Nyaz
 Signature: Project Manager/DLAE

6/13/16
 Date

NEPA/CEQA RE-VALIDATION FORM

CONTINUATION SHEET(S)

Address only substantial changes or substantial new information since approval of the original document and only those areas that are applicable. Use the list below as section headings as they apply to the project change(s). Use as much or as little space as needed to adequately address the project change(s) and the associated impacts, minimization, avoidance and/or mitigation measures, if any.

Changes in project design, e.g., substantial scope change; a new alternative; change in project alignment

There have been no substantial scope changes, new alternatives or changes to the project alignment.

Changes in environmental setting, e.g., new development affecting traffic or air quality;

There have been no changes in the environmental setting.

Changes in environmental circumstances, e.g., a new law or regulation; change in the status of a listed species.

There have been no changes in the environmental circumstances, new laws, regulations or changes to the status of listed species present within the project limits.

Changes to environmental impacts of the project, e.g., a new type of impact, or a change in the magnitude of an existing impact.

There have been no changes to the environmental impacts of the project.

Changes to avoidance, minimization, and/or mitigation measures since the environmental document was approved.

The final environmental document included a condition in response to a comment letter from the California State Lands Commission that said "Caltrans will implement a non-standard special provision to require the cleaning and decontamination of all equipment brought into the construction area and to require this of any vehicles and equipment used on multiple construction sites." During design phase it was determined that implementing this condition would cause other unforeseen environmental consequences. The Project's Special Provisions and Notice to Bidders will include a specification addressing invasive aquatic species by requiring all equipment that will be used in water to be inspected and/or cleaned prior to arriving at the construction site, in compliance with the U.S. Department of the Interior Bureau of Reclamation 2010 Technical Memorandum No. 86-68220-07-05. The Technical memo will be included in the contract informational handout.

Changes to environmental commitments since the environmental document was approved, e.g., the addition of new conditions in permits or approvals. When this applies, append a revised Environmental Commitments Record (ECR) as one of the Continuation Sheets.

There have been changes to the environmental commitments since the environmental document was approved due to the issuance of permits. A revised ECR has been attached.

Environmental Commitments Record for EA 04-20950_ / ID 0412000116

Last updated 6/13/2016

Estero Americano bridge replacement

MRN-001-50.1/50.5

Current Project Phase: 1,2,9

EP: Arnica MacCarthy

510-286-7195

CL: Ryan Graybehl

510-286-6071

RE:

Permits

Permit	Agency	Date Submitted	Date Received	Expiration	Requirements Completed	Comments
1600	California Department of Fish & Wildlife	7/24/15	11/23/15			
401	Regional Water Quality Control Board (1)	10/1/15	4/21/16			
404 Nationwide	US Army Corps of Engineers	6/16/15	3/25/16	3/18/17		
BO (FWS)	US Fish and Wildlife	7/17/14	12/1/14			
Coastal Development Permit	Coastal Commission	7/14/15	4/4/16			
JD- Jurisdictional Determination	US Army Corps of Engineers	11/14/14	6/16/15			
Programmatic BO	National Marine Fisheries Service		10/15/14			
State Lands Permit	State Lands Commission	6/3/15	7/29/15			

Commitments

Task and Brief Description	Source	SSP/ Nssp	Responsible Staff	Action to Comply	Task Completed Name	Task Completed Date	Remarks/Due Date
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Pre-Construction

Biology

A USFWS-approved biologist will conduct surveys for BO SSP Biologist & RE Pre-construction surveys foraging Myrtle's silverspot butterfly adults ahead of any major vegetation clearing within the project footprint and at regular intervals until all clearing is completed.

Environmental Commitments Record for EA 04-20950_ / ID 0412000116

Last updated 6/13/2016

Estero Americano bridge replacement

MRN-001-50.1/50.5

Current Project Phase: 1,2,9

EP: Arricca MacCarthy

510-286-7195

CL: Ryan Graybehl

510-286-6071

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Task Completed Date	Remarks/Due Date
All construction personnel will attend a mandatory environmental education program delivered by a USFWS-approved biologist prior to working on the project site. The program will include an explanation of how to best avoid the incidental take of listed species and how to avoid impacting sensitive areas. The program will include an explanation of applicable federal and state laws protecting endangered species as well as the importance of compliance with Caltrans and various resource agency conditions.	BO		Biologist & RE	Conduct pre-construction environmental awareness training			
All initial vegetation clearing, but not grubbing, will be conducted outside the typical bird nesting season, February 15 to August 31. Major vegetation removal will be conducted between September 1 and October 15.	BO, 1600 Agreement	SSP	Biologist & RE	SSPs define work windows and ESA areas.			
Bat protection: Any large snags or trees with large cavities potentially used as roosting sites within the construction impact area will be removed using a two-phased approach to allow any roosting bats to leave on their own volition. This approach involves removing limbs from the tree on the afternoon of the first day and stumping the tree on the following day.	BO	Task Order	Biologist	Include tree removal methods in development of Pre-Construction Task Order for tree removal in 2016.			
Construction activities will only be conducted between April 15 and November 1 within the entire project limits. Work in the creek channel will be limited to June 15 through October 15.	BO, 1600 Agreement, 404, 401, CDP	SSP	Biologist & RE	SSPs define work windows and ESAs.			
Copies of other agency approvals/permits required to be submitted to CCC prior to start of construction	CDP - State	n/a	Robert Solotar				
Final project plans and construction plans required to be submitted to the CCC for review and approval.	CDP - State	n/a	Robert Solotar	Submit plans prior to start of construction			
Grubbing will only be conducted during the summer dry season and during the time when work is allowed in the creek.	BO, 1600 Agreement	SSP	Biologist & RE	Work windows and ESA areas defined in SSPs and project plans.			
If tricolored blackbird nests are observed within the project footprint, Caltrans will coordinate necessary measures to protect the species with the California Department of Fish and Wildlife.	BO	SSP	Biologist & RE	Pre-construction surveys required in SSPs.			
Migratory Bird Treaty Act: At least five (5) days prior to	BO, 1600	SSP	Biologist & RE	SSP details this.			

Environmental Commitments Record for EA 04-20950_ / ID 0412000116

Last updated 6/13/2016

Estero Americano bridge replacement

M/RN-001-50.1/50.5

Current Project Phase: 1,2,9

EP: Arnica MacCarthy 510-286-7195

CL: Ryan Graybehl 510-286-6071

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Task Completed Date	Remarks/Due Date
construction or any vegetation clearing, the project area will be surveyed for tri-colored blackbird, migratory birds and their nests, regardless of the time of year. Surveys shall consist of multiple days of observation. Should any active nest be found, appropriate buffers will be applied. No work will be allowed to occur within 50 feet of nesting passerine birds or 300 feet of nesting raptors. Any nesting migratory birds within or near the project footprint will be regularly monitored for signs of disturbance; work will be avoided in such areas until all birds have fledged.	Agreement						
No project construction within waters of the U.S. shall occur until the Corps has reviewed and approved a complete Mitigation and Monitoring Plan.	404 Permit		Biologist	Submit complete Mitigation and Monitoring Plan.			
Restoration & Monitoring Plan required to be submitted to the CCC for review and approval.	CDP - State	n/a	Robert Solotar / Chris Pinnceitch	Submit plan prior to start of construction			
Submit SWPPP to Coastal Commission prior to start of construction	CDP		Biologist & RE				
Tri-colored Blackbird: 1. Species-specific surveys for the tricolored blackbird will be conducted in 2016 and 2017 to determine if the species is present at the project site. If so, the Migratory Bird Treaty Act measures will minimize impacts to the species during construction. Additional measures will be identified as necessary.	Env Doc		Biologist	Conduct species-specific surveys for tri-colored blackbird 2016 and 2017.			
Vegetation will be cleared only where necessary; grubbing will be minimized to the maximum extent practicable. Efforts will be taken to minimize impacts to well-established vegetation, particularly within the Americano Creek floodplain where feasible	BO		Biologist & RE	ESA delineated to minimize vegetation clearing. Contractor, under direction of Biologist and RE to fence ESA and not disturb it.			
Water Quality							
Notify the Water Board in email at least 5 working days prior to commencement of ground disturbing activities for each construction season (condition 4)	401 Permit		Resident Engineer				

Construction

Environmental Commitments Record for EA 04-20950_ / ID 0412000116

Last updated 6/13/2016

Estro Americano bridge replacement

MRN-001-50.1/50.5

Current Project Phase: 1,2,9

EP: Arnica MacCarthy

510-286-7195

CL: Ryan Graybehl

510-286-6071

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Date	Remarks/Due Date
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Biology

All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 150 ft from any downstream riparian habitat, aquatic habitat, culvert, or drainage feature.

BO Resident Engineer

All work shall take place during daylight hours.

CDP - State n/a

RE

All work shall take place during daylight hours

Any and all dredge material produced as a result of removing the existing bridge abutments and constructing the new abutments will be fully contained within the project limits and removed offsite.

BO Resident Engineer

California red-legged frog and Contra Costa goldfields protection: Wildlife exclusion fencing or silt fencing will be erected at the edge of the project footprint.

BO SSP Biologist & RE SSPs and project plans define type and locations of fencing.

Complete 0.36 acre of wetland establishment on-site and 0.29 acre of wetlands restoration on-site for the purpose of compensatory mitigation (0.65 acre total).

404 Permit Resident Engineer Submit Mitigation Monitoring Success report at end of 5 years.

Dedicated fueling and refueling practices will be designated as part of the approved SWPPP. Dedicated fueling areas will be protected from stormwater run-on and will be located at least 50 feet from downslope drainage facilities and water courses. Fueling must be performed on level-grade areas. On-site fueling will only be used when and where it is impractical to send vehicles and equipment off-site for fueling.

BO Resident Engineer Comply with all Biological Opinion requirements during construction.

Dust control measures will be implemented consisting of regular truck watering of construction access areas and disturbed soil areas, including the use of organic soil stabilizers if needed.

BO Resident Engineer Comply with all Biological Opinion requirements during construction.

If a California red-legged frog is encountered in the project footprint, work within 50 feet of the animal will cease immediately, the Resident Engineer and the Service-approved biologist will be immediately notified, and the Service will be notified

BO SSPs Biologist & RE SSPs define pre-construction surveys, protected species, and safe distances from protected species.

Environmental Commitments Record for EA 04-20950_ / ID 0412000116

Last updated 6/13/2016

Estero Americano bridge replacement

MRN-001-50.1/50.5

Current Project Phase: 1.2.9

EP: Arnica MacCarthy

510-286-7195

CL: Ryan Graybehl

510-286-6071

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Date	Remarks/Due Date
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within 24 hours.

If pumping is used for de-watering, intake screens must comply with regulatory requirements.

USFWS BO, NMFS PBO SSP Biologist & RE
Comply with all Biological Opinion requirements during construction.

Plastic mono-filament netting (erosion control matting) or similar material will not be used at the project site. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

BO SSP Biologist & RE
Do not use plastic mono-filament netting

Project-related vehicle traffic will be restricted to established roads and construction areas. Access roads will be constructed to the minimum amount necessary. Project vehicles will observe a 20-mile-per-hour speed limit while in the action area.

BO Resident Engineer
Comply with all Biological Opinion requirements during construction.

Purple-stemmed checkerbloom and Johnny nip: ESA fencing will be erected around the area where purple-stemmed checkerbloom is known to occur. Water quality BMPs will prevent dust generated from construction activities from washing into the field where Johnny nip has been observed.

Env Doc, BO, NES SSP Biologist & RE
SSPs and project plans define type and locations of fencing.

Rodenticides will not be used at the project site. Herbicides will only be used if needed to control noxious weeds.

BO Resident Engineer
Do not use rodenticides. Limit or prohibit use of herbicides.

The project footprint will be reseeded with a native seed mix and by replanting all impacted riparian vegetation following construction to restore the area to its pre-project condition. This will replace suitable habitat lost during construction.

BO, 404, 401, 1600 Agreement, CDP Contractor, Biologist & RE
Project plans specify native plant seed mixes and areas to apply them.

Topsoil removed by grading operations shall be stockpiled for reuse and protected from compaction or erosion during stockpiling

CDP - State SSP Resident Engineer
SSP and project plans define areas of topsoil removal and re-use.

USFWS-approved biological monitors will be present daily during all initial, major vegetation removal and all grubbing activities. Prior to the vegetation clearing and initial ground-disturbing activities, a pre-construction survey will be conducted. Once the project footprint is cleared, there will be daily biological monitoring during the early stages of the project. Monitoring activities and the intensity needed will be determined in coordination with the USFWS throughout the

BO SSP Biologist & RE
SSPs define pre-construction surveys.

Environmental Commitments Record for EA 04-20950_ / ID 0412000116

Last updated 6/13/2016

Estero Americano bridge replacement

MRN-001-50.1/50.5

Current Project Phase: 1.2.9

EP: Arnica MacCarthy

510-286-7195

CL: Ryan Graybehl

510-286-6071

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Date	Remarks/Due Date
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project.

Work shall be conducted during dry weather in the bed, bank, channel and associated wetland habitat. When 1/4 inch or more of precipitation is forecasted to occur, stop work before precipitation commences. After any storm event, inspect all sites within 72 hours for erosion and sediment problems and take corrective action as needed. National Weather Service 72-hour forecasts shall be consulted and work shall not resume until runoff ceases and there is less than a 30% forecast for precipitation for the following 24-hr period.

Cultural Resources

If previously unidentified cultural materials are unearthed during construction, it is Caltrans' policy that work be halted in that area until a qualified archaeologist can assess the significance of the find. Additional archaeological survey will be needed if project limits are extended beyond the present survey limits.

Env Doc

Cultural
Resources
Lindsay
Hartman

Stormwater

Equipment should be free of aquatic invasive species and should be inspected and/or cleaned prior to arrival to site in compliance with the U.S. Department of the Interior Bureau of Reclamation 2010 Technical Memorandum No. 86-68220-07-05.

Env Doc

NSSP RE

Water Quality

The Project is expected to require 2 years of construction. The Project is proposed to begin in May 2016, and be completed in November 2018. Work within waters will be conducted in the dry season (June 15- October 15).

401 Permit

Contractor

Work within waters will be conducted in the dry season (June 15 to October 15)

To compensate for the permanent impacts to wetlands and riparian areas, Caltrans shall establish 2.2 acres of riparian plantings and 0.95 acres of seasonal wetlands off-site at the Estero Americano Coastal Preserve, as described in the Estero Americano Creek Bridge Replacement Wetland and Riparian Habitat and Mitigation Monitoring Plan, dated March 2016. A total of 1.22 acres of riparian willows shall be replanted on-site from salvaged willow tree cuttings collected onsite prior to construction. A total of 0.36 acres of wetlands shall be established in areas adjacent to permanent

401 Permit,
404, CDP,
HMMP

contractor

Mitigation off-site and on-site

Environmental Commitments Record for EA 04-20950_ / ID 0412000116

Last updated 6/13/2016

Estro Americano bridge replacement

MRN-001-50.1/50.5

Current Project Phase: 1,2,9

EP: Arrnica MacCarthy

510-286-7195

CL: Ryan Graybehl

510-286-6071

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Date	Remarks/Due Date
wetlands impacts. In addition, 0.29 acre of wetlands shall be restored in areas where temporary impacts occurred, for a total of 0.65 acre of wetlands re-created onsite.							

To prevent the inadvertent entrapment of the California red-legged frog, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day by plywood or similar materials. If it is not feasible to cover an excavation, one or more escape ramps constructed of earthen fill or wooden planks will be installed.

BO

Biologist & RE

Cover holes and trenches, or provide escape ramps.

Storm Water Treatment

Install one biofiltration swale (condition 2) - (no less than 1.35 acres with imported biofiltration soil incorporated to a depth of 4 feet. Submit photographs of completed vegetated bioswale no later than May 1, 2018. (See project plan C-2 and D1 for details)

401 Permit

Contractor

install one biofiltration swale

Post-Construction

Biology

Responsibilities of the project will not be considered fulfilled until Caltrans demonstrates mitigation success and has written verification from U.S. Army Corps of Engineers.

404 Permit

Biologist & RE

Submit Mitigation Monitoring Success report at end of 5 years.

Water Quality

Submit Annual monitoring report for Wetland and Riparian Habitat Mitigation described in the submitted MWP (5 years required). (See Condition 3)

401 Permit

Biology

Submit Annual monitoring Report no later than January 31 following the respective monitoring year for 5 years.

Construction & Post-Construction

Environmental Commitments Record for EA 04-20950_ / ID 0412000116

Last updated 6/13/2016

Esterio Americano bridge replacement

MRN-001-50.1/50.5

Current Project Phase: 1,2,9

EP: Arnica MacCarthy

510-286-7195

CL: Ryan Graybehl

510-286-6071

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Date	Remarks/Due Date
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Biology

Caltrans will submit post-construction compliance reports prepared by the USFWS-approved biologist to the USFWS within 60 calendar days following completion of each construction season or within 60 calendar days of any break in construction activity lasting more than 60 calendar days.

BO

Biologist & RE

Submit post-construction compliance to USFWS within 60 days following completion of each construction season or within 60 calendar days of any break in construction activity lasting more than 60 calendar days.

 Eric DeNardo Environmental Branch Chief	Date 6/13/16	 NYAZ, WAJAHAT Project Manager	Date 6/13/2016
Project Engineer	Date	Resident Engineer	Date

Memorandum

*Serious drought
Help Save Water!*

To: MR. DOUGLAS DUNRUD
Senior Bridge Engineer
Design Branch 14
Office of Bridge Design South 1
Division of Engineering Services

Date: September 25, 2015

Attention: V. Ramakrishnan

File: 04-MRN- 1- PM 50.5
04 - 209500
Efis# 0412000116
Estero Americano Bridge (Replace)
Br. No. 27-0121

From: CAROLINE CHEN *CC*
Transportation Engineer
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

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Subject: FINAL FOUNDATION RECOMMENDATIONS FOR ESTERO AMERICANO BRIDGE (REPLACE)

INTRODUCTION

This memorandum provides foundation recommendations for the replacement of Estero Americano Bridge. The new Bridge No. 27-0121 replaces the existing Bridge No. 27-0028. Estero Americano Bridge is located on Route 1 in the City of Petaluma, Marin County. The project site is shown on Figure 1. The existing bridge was originally constructed in 1925, consisting of eight spans. The proposed bridge consists of 4 spans and will be supported on pile foundations. Four retaining walls are proposed at both ends of the new bridge.

EXISTING FOUNDATION

There are no as-built records indicating the type of foundation used to support the structure. The bridge appears to be supported on spread footings based on the very limited as-built plans. The

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elevations of the footing bottom ranges from 19.0 ft to 9.5 ft, or at depths ranging from 11.0 ft to 20.5 ft below the existing bridge deck based on the as-built plans.

We conducted an initial site visit on October 26, 2012. The area on the side of the creek and adjacent to the bridge is heavily covered by low to medium rise bushes and trees. The creek was dry at the time of our visit. Moderate to significant deteriorations of the structures at several locations especially below the deck and on the sides were observed. No signs of significant scour were observed at the location of the existing bents at the time of our visit.

REGIONAL GEOLOGIC OVERVIEW

The project is located in the Coast Range Geomorphic Province of Central California, a series of northwest-trending mountain ranges (2,000 to 4,000, occasionally 6,000 feet elevation above sea level), and intermountain valleys, bounded in the east by the Great Valley and to the west by the Pacific Ocean. The Coast Ranges are composed of thick Mesozoic and Cenozoic sedimentary strata. The northern and southern ranges are separated by a depression containing the San Francisco Bay. The Coast Ranges are sub-parallel to the active San Andreas Fault, which is more than 600 miles long, extending from Pt. Arena to the Gulf of California.

SITE GEOLOGY

According to the geologic map (Figure 2) of the area, the project is underlain by young Holocene-aged (present to 1,000 years) younger Alluvium (Wieggers, 2008). The younger Alluvium consists of fluvial sediments deposited on modern floodplains. Age is based on the presence of youthful meander scars and braid bars identified on aerial photos and geomorphic position close to the elevation of modern stream channels. Deposits consist of sand, silt, and clay.

SUBSURFACE CONDITIONS

There are no as-built Log of Test Borings (LOTBs) available for this structure. Recent site investigations include two Cone Penetration Testing (CPT) conducted in November 2012 to provide subsurface information for a SPGR. A more detailed investigation consisting of six rotary borings was conducted in April 2015 to develop foundation recommendations for the proposed bridge and retaining walls. Both investigations were conducted by Caltrans. The CPTs were advanced to depths where refusal occurred at depths of 20.5 and 23 feet, or approximate elevations 8.5 and 7.0 ft, respectively. The CPT test results indicate the soil encountered consists of very stiff sandy clay, dense sand, and silt. Based on the rotary boring data, fill consisting of silty gravel and silty clay with gravel was encountered in the borings conducted on the roadway for the upper zone up to 5 ft thickness, followed by approximate 15 ft thick of alluvium. The alluvium consists of firm to stiff sandy clay, medium dense clayey sand, and medium dense sand and sand with gravel.

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This layer was encountered up to elevation 8.0 ft. Below the alluvium layer, hard sandy clay, hard clayey silt, and very dense clayey sand were encountered to the exploration depth. Table 1 presents a summary of the borings and CPTs as referenced above. The approximated locations of these borings and CPTs are presented in Figure 3.

Groundwater table was not measured during our drilling due the use of drilling mud. On November 20, 2012 when we visited the site, the creek level was measured at 6 feet depth below the bottom of the bridge deck. The deck surface is at approximate elevation 30 ft, and the deck is about 3 ft thick, so the creek level was at approximate elevation 21 ft. The water was observed at about elevation 23 ft during a site visit conducted in December 2014 after a heavy rain fall. The hydraulic report indicates that for the 100-year and 50-year event, the approximate water surface elevations are 30.4 ft and 29.8 ft, respectively.

Table 1 Summary of Borings

Boring No.	Top of Boring Elevation (ft)	Bottom of Boring Elevation (ft)	Borehole Depth (ft)	Groundwater Elevation (ft)
RW-15-001	29.1	0.1	29	Not Measured
RW-15-002	29.1	-0.9	30	Not Measured
RW-15-003	29.4	-52.6	82	Not Measured
RW-15-004	28.2	-28.8	57	Not Measured
RW-15-005	28.8	-41.2	70	Not Measured
RW-15-006	29.0	-2.0	31	Not Measured
CPT-12-001	30.0	7.0	23	Not Measured
CPT-12-002	29.0	8.5	20.5	Not Measured

LABORATORY TESTING PROGRAM

Representative soil samples obtained from the exploratory borings were tested to evaluate their engineering properties. The following tests were performed:

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- Moisture Content (ASTM D2216)
- Particle-size (sieve) Analysis (ASTM D422 and D1140)
- Unconfined Compressive Strength (ASTM D2166)
- Atterberg Limits (ASTM D4318)
- Corrosion Test (California Test Methods 643, 422, and 417).

The laboratory test results are attached in Appendix A.

SOIL PROFILE

Subsurface conditions are characterized based on the field investigation and laboratory testing mentioned above. Table 2 presents the idealized soil profile and strength parameters to be used for our foundation recommendations.

Table 2 Idealized Soil Profile and Strength Parameters

Approx. Elevation (ft)	Predominant Soil Type	Total Unit Weight (pcf)	Friction Angle (degree)	k (pci)	ϵ_{50}	Cohesion/ Undrained Shear Strength (psf)
29.0 to 9	sandy clay, clayey sand	120	28	60	N/A	0
9 to -50	hard clayey silt, hard sandy clay	130	28	2000	0.004	7500

SCOUR

A Final Hydraulics Report (FHR) dated May 12, 2015, was provided by Genaro Doria of Structure Hydraulics and Hydrology. The hydraulics report concludes that contraction scour and long term-degradation do not appear to be a concern at this location. The FHR recommends local pier scour depth of 8.0 ft, corresponding to elevation 13.0 ft, and local abutment scour depth of 10.0 ft, corresponding to elevation 14.0 ft. Based on the email communications from structure designer and Genaro Doria, scour impact in the retaining walls will be neglected.

CORROSIVITY

Soil samples were collected during the field investigation conducted in April 2015 for Corrosivity test. Table 2 presents the test results. Based on the current Caltrans corrosion guideline, the site is considered non-corrosive.

Table 3 Corrosivity Test Results

Boring No.	Depth (ft)	Soil Type	pH	Minimum Resistivity (ohm-cm)	Chloride (ppm)	Sulfate (ppm)
RW-15-005	15-17	Sandy clay	7.35	2874	-	-
RW-15-006	10-11	Sandy clay	7.35	5380	21	27

Note: The Caltrans Corrosion Guidelines state that if the minimum resistivity is greater than 1000 Ohm-Cm the sample is considered to be non-corrosive and testing to determine sulfate and chloride is not performed. Caltrans currently considers a site to be corrosive to foundation elements if one or more of the following conditions exist: Chloride concentration is greater than or equal to 500 ppm, sulfate concentration is greater than or equal to 2000 ppm, or the pH is 5.5 or less.

SEISMICITY/LIQUEFACTION POTENTIAL

A Seismic Design Recommendation (SDR) dated June 25, 2015 was prepared by Hossain Salimi from the Office of Geotechnical Design West to provide seismic recommendations for this structure. The Peak Ground Acceleration is 0.61g based on the SDR. The SDR concludes the liquefaction potential of the subsurface soil at the site is minimal.

FOUNDATION RECOMMENDATIONS

Bridge

Due to the presence of very hard clayey silt, clay, and very dense clayey sand material at the site and environmental constraints such as noise level, use of driven piles are not feasible/allowed. Cast-In-Drilled-Hole (CIDH) piles are considered the most feasible option for the proposed bridge. At abutments, 24 inch CIDH piles are proposed and 48 inch CIDH piles are proposed at piers. Use of battered piles is not a practical option when CIDH pile type is used. Tables 4 and 5 present the foundation design data and design load provided by Structure Designer. Tables 6 and 7 present the foundation recommendations and pile data table, respectively. The estimated settlement under the service load is estimated to be less than 1 inch at the specified pile tip elevations. Pile tip elevations controlled by lateral demand for piles at piers will be determined by Structure Designer.

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Based on the as-built plan, there may be conflict between the existing and proposed foundations. Left support of Pier 3 of the proposed structure is in the proximity of the existing Bent 3. Left support of Pier 4 of the proposed structure is in the proximity of the existing Bent 7. The existing spread footings may be left in place to avoid environmental impact with the extensive excavation. If conflicts are encountered, the new piles that conflicts with the existing foundation need to be installed by coring through the existing spread footing in advance of drilling for the new piles and permanent casing.

Table 4 Foundation Design Data (from Structure Design)

Support No.	Pile Type	Finished Grade Elevation (ft)	Cut-off Elevation (ft)	Pile Cap Size (ft)		Permissible Settlement under Service Load (in)*	Number of Piles per Support
				B	L		
Abut 1	24" CIDH	N/A	11.25	9	21	1"	10
Pier 2	48" CIDH	17.5	18.0*	N/A	N/A	1"	1**
Pier 3	48" CIDH	17.5	18.0*	N/A	N/A	1"	1**
Pier 4	48" CIDH	17.5	18.0*	N/A	N/A	1"	1**
Abut 5	24" CIDH	N/A	11.25	9	21	1"	10

Note: *- Cut off elevation is based on the existing ground and is approximate.
 ** - Each pier is supported by two columns, with each column supported by a pile

To minimize the potential of anomalies and thus delays in construction, permanent casing is recommended for all CIDH piles. The bottom of casing is recommended to be a minimum of 3 ft and 4 ft into the hard layer for piles at abutment and piers, respectively. The use of casing is to maintain stability during the required socket drilling below the casing and preferably seal the drilled hole from groundwater seepage from the overburden alluvial soils. Specifically, we recommend bottom of the permanent casing no higher than elevation at 6.0 ft at abutments, and 5.0 ft at piers. The casing should have complete contact with the supporting soils and may be installed by vibratory hammer, a rotator with or without oscillation, or other comparable method at the contractor's proposal. Driving to install casing is not allowed due to environmental restriction. The diameter of permanent casing shall be at least 12 inch greater than the CIDH pile diameter. The depth, method and equipment proposed for the casing installation by the contractor shall be reviewed by us.

The tip elevations of piles at abutments and piers controlled by compression demand are specified so the piles are socketed in the hard clayey silt or clay layer for 16 ft and 41 ft, respectively, starting from the bottom of the permanent casing. If the bottom of the permanent casings is installed deeper than specified, or the hard clayey silt layer is encountered deeper than anticipated, we shall be contacted and the pile tip elevations shall be revised accordingly.

Use of wet CIDH construction method should be anticipated due to groundwater and possible seepage. The bottom of the drilled holes shall be cleaned of loosen soils and drilling cuttings before the concrete placement.

Table 5 Foundation Factored Design Loads (from Structure Design)

Support No.	Service-I Limit State (kips)		Strength/Construction Limit State (Controlling Group, kips)				Extreme Event Limit State (Controlling Group, kips)			
	Total Load Per Support	Permanent Loads Per Support	Compression		Tension		Compression		Tension	
			Per Support	Max. Per Pile	Per Support	Max. Per Pile	Per Support	Max. Per Pile	Per Support	Max. Per Pile
Abut 1	811	650	1107	266	424	102	N/A	N/A	N/A	N/A
Pier 2	635	347	1444	1444	553	553	628	628	628	628
Pier 3	635	347	1444	1444	553	553	628	628	628	628
Pier 4	635	347	1444	1444	553	553	772	772	628	628
Abut 5	811	650	1107	266	424	102	N/A	N/A	N/A	N/A

Note: Lateral Demand at Abutments is 275 Kips. Allowable horizontal displacement of the pile is ¼”.

Table 6 Foundation Recommendations

Support Location	Pile Type	Cut-off Elev. (ft)	Required Nominal Resistance Per Pile (kips)				Design Tip Elev. (ft)	Specified Tip Elev. (ft)
			Strength Limit		Extreme Event			
			Comp. ($\phi=0.7$)	Ten. ($\phi=0.7$)	Comp. ($\phi=1$)	Ten. ($\phi=1$)		
Abut 1	24" CIDH	11.25	380	150	N/A	N/A	-10.0 (a-I) -2.0 (a-II) -5.0 (b)	-10.0
Pier 2	48" CIDH	18.0	2070	790	630	630	-36.0 (a-I) -11.0 (a-II)	-36.0
Pier 3	48" CIDH	18.0	2070	790	630	630	-36.0 (a-I) -11.0 (a-II)	-36.0
Pier 4	48" CIDH	18.0	2070	790	780	630	-36.0 (a-I) -11.0 (a-II)	-36.0
Abut 5	24" CIDH	11.25	380	150	N/A	N/A	-10.0 (a-I) -2.0 (a-II) -5.0 (b)	-10.0

Design tip elevations are controlled by: (a-I) Compression (Strength Limit), (a-II) Tension (Strength Limit), (b) Lateral Load (at piers to be determined by Structure Design).

Table 7 Pile Data Table

Location	Pile Type	Nominal Resistance (kips)		Design Tip Elev. (ft)	Specified Tip Elev. (ft)	Bottom of Permanent Casing Elev. (ft)
		Compression	Tension			
Abut 1	24" CIDH	380	150	-10.0 (a-I); -2.0 (a-II); -5.0 (b)	-10.0	6.0
Pier 2	48" CIDH	2070	790	-36.0 (a-I); -11.0 (a-II)	-36.0	5.0
Pier 3	48" CIDH	2070	790	-36.0 (a-I); -11.0 (a-II)	-36.0	5.0
Pier 4	48" CIDH	2070	790	-36.0 (a-I); -11.0 (a-II)	-36.0	5.0
Abut 5	24" CIDH	380	150	-10.0 (a-I); -2.0 (a-II); -5.0 (b)	-10.0	6.0

1. Design tip elevations for Abutments & Pier are controlled by (a-I) Compression; (a-II) Tension; (b) Lateral loads (at piers to be determined by Structure Design).
2. Socket of CIDH piles at piers shall be 40 ft in the hard clayey silt, starting from the bottom of permanent casing.

Retaining Walls

There are 4 retaining walls proposed at the beginning and end of the bridge. Table 8 presents the summary of these retaining walls. Caltrans Type I retaining walls are proposed for all these retaining walls, so no structure design will be needed.

Based on the subsurface condition, the spread footings cannot provide adequate bearing capacities for these walls at the proposed bottom of footing elevations. Driven piles are ruled out due to

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environmental restrictions. CIDH piles are feasible, but are not preferred by structure designer due to the concern of potential anomalies.

Table 8 Summary of Proposed Retaining Walls (Type I)

Wall location		Length (ft)	Design Height (ft)	Bottom of Footing Elevation (ft)
Beginning of Bridge	Left wall – RTW 1	597	12	24.5
	Right wall – RTW 2	272	16	18.8 (Sta 20+50 to 21+00) 21.3 (Sta 21+00 to 23+22.4)
End of Bridge	Left wall – RTW 4	107	12	24.5
	Right wall – RTW 3	182	12	20.5

We recommend deep foundation or ground improvement, specifically by compacted stone columns, to meet the load demands. Another option is to over-excavate the material under the retaining wall footings and replace with structural backfill. Below are our recommendations for both options.

Compacted Stone Columns

For the ground improvement option, we recommend using stone columns to treat the area under the footings and fill, and extend 5 ft beyond the edge of the footings. The recommended diameter of stone column is minimum 2.5 ft, with 6 ft center-to-center spacing in a triangular grid pattern. The stone columns should be installed so the bottom of the columns are founded on the hard clayey soil at about Elevation 9.0 ft. Replacement methods that drill and place gravel in the drilled hole are not acceptable. The vibrating column/probe shall penetrate the ground and the gravel shall be bottom fed.

The gravel placed in the holes shall be -3/4 inch crush gravel with fines (percent passing #200 sieve) less than 5%.

Verification tests shall be conducted in a designated test section within the bridge approaches before the production ground treatment. The test section shall be treated by 9 stone columns placed in three rows in a triangular grid. At least one CPT before and three CPTs after the test ground treatment shall be conducted on the soil within the treatment test section. Spacing of the stone

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columns may be adjusted based on the outcome of the tests. Proof CPTs shall be conducted during the production stone column installation and shall consist of a set of three CPTs placed across the treated roadway (left, center, right) at a longitudinal spacing of 50 ft along the total length of the treated area.

The acceptance criteria for the ground treatment is as follows:

- 1) Minimum 15% reduction in the volume of the gravel placed in the hole due to densification
- 2) CPT tip resistance of minimum 120 bars in sandy soils and 30 bars in clayey soils surrounding the stone columns.

The surface of the ground where the wall and backfill are supported shall be brought up to grade by placing 4-inch class 2 aggregate base and be proof rolled with three passes of medium light roller before placing the wall footing and the backfill.

Excavation and Replacement Option

For the soil over-excavation and replacement option, we recommend 5 ft over-excavation for Retaining Walls 1, 3, and 4, and 6.5 ft over-excavation for Retaining Wall 2, and replace with structure backfill with 95 percent relative compaction. It is recommended the over-excavation and backfill extends 5 ft beyond footing toe and 2 ft beyond footing heel.

Shoring and dewatering will be needed for the excavation and backfill.

The second option is a preferred choice due to lower cost involved and the need to complete the construction within the allowed period for minimizing environmental impact and other contract staging requirements according to Office Engineer.

CONSTRUCTION CONSIDERATIONS

- 1) Groundwater is anticipated during the installation of CIDH piles and thus use of slurry during pile installation is anticipated.
- 2) Please refer to the Foundation Recommendation, subsections “bridge” and “retaining walls” for construction considerations for the permanent casing need, drilled holes, and stone column ground treatments. Specifically, the permanent casing shall be fully sealed into the hard silty clayey formations to minimize seepage.
- 3) Temporary shoring is anticipated if excavation is needed to install piles. Cofferdams consisting of sheet piles stiffened with walers and bracings maybe an option for Contractor. The temporary shoring shall penetrate sufficiently into hard clay strata for its stability and to reduce dewatering needs. The temporary shoring shall be designed by Contractor and reviewed by our office.

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- 4) The excavation over the approach areas and replacement of the unsuitable existing soils with the structure backfill, as mentioned above, needs shoring and dewatering. The design of the shoring and the dewatering are the responsibility of the contractor and need our review and approval.
- 5) Dewatering is anticipated for majority of the excavations with or without temporary shoring.
- 6) The excavation at abutments shall be backfilled with structure fill compacted to 95% relative density.
- 7) Cutting ring with welded teeth may be used to ease the required casing penetration into the hard silty clay formation at the option of contractor.
- 8) Installation of CIDH piles should be performed in accordance with Section 49-3, CAST-IN DRILLED-HOLE CONCRETE PILING, of the 2010 Caltrans Standard Specifications.
- 9) Bypass system for the channel water diversion from the excavation zone need design of suitable coffer dams and high capacity bypass pipe. The design and construction of these elements shall not allow any risk of their failure during the construction. These items are the responsibility of the contractor and are subject to reviews by us and other related Caltrans team.

If you have any questions or need additional information, please contact Caroline Chen at 916-227-5386 or Mahmood Momenzadeh at 510-286-5732.

Attachments:

c: TPokrywka, MMomenzadeh, HSalimi, APang, RSchaerli, RFernandes, RWoo, Geotechnical Archive

CChen/MMomenzadeh/mm



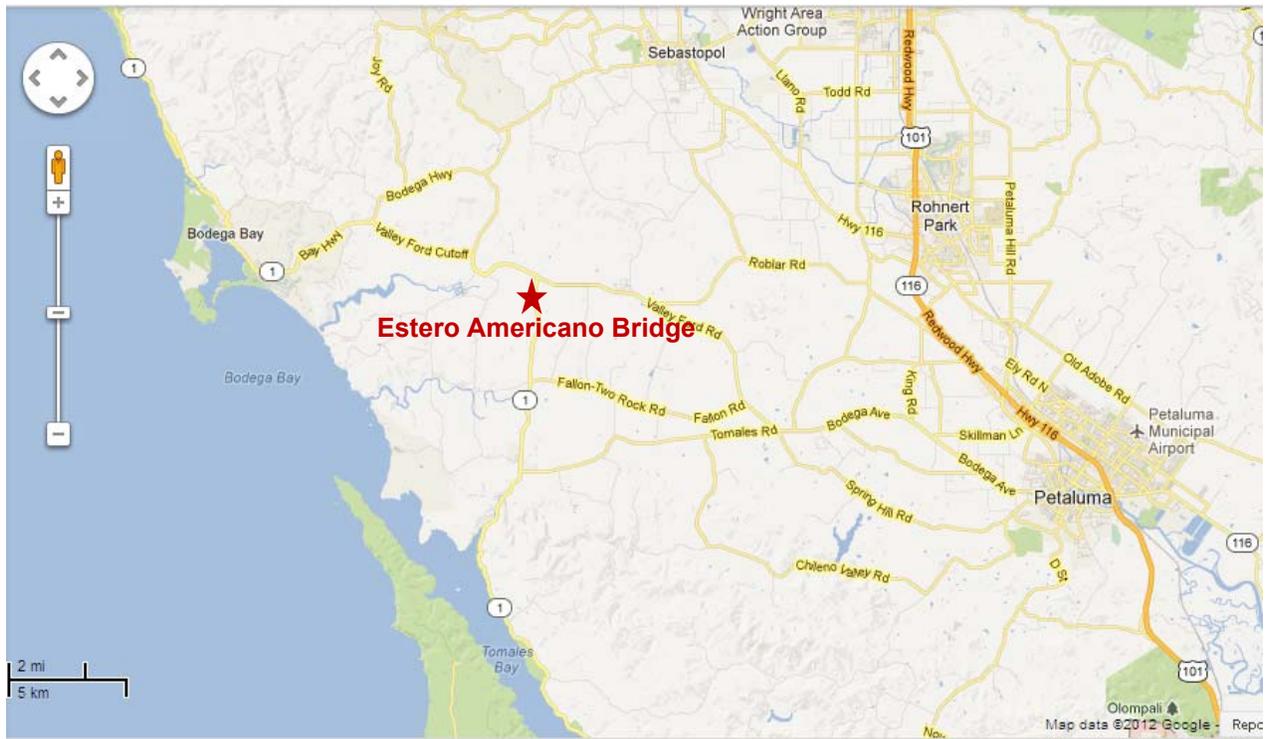


Figure 1 Site Map



LEGEND

- Qhc Modern Stream Channel Deposit
 - Qhay Alluvium (Holocene <1,000 years)
 - Qha Alluvium (Holocene)
 - Qht Stream Terrace
 - KJfm Franciscan Complex Melange
- Base: Geologic Map of the Valley Ford Quadrangle, Sonoma and Marin Counties, California (Wieggers, 2008)
- Not to scale



ESTERO AMERICANO BRIDGE REPLACEMENT
 HIGHWAY 1, POST MILE 50.3-50.5
 MARIN COUNTY, CALIFORNIA

AUGUST 2015

VICINITY
 GEOLOGIC MAP

FIGURE 2

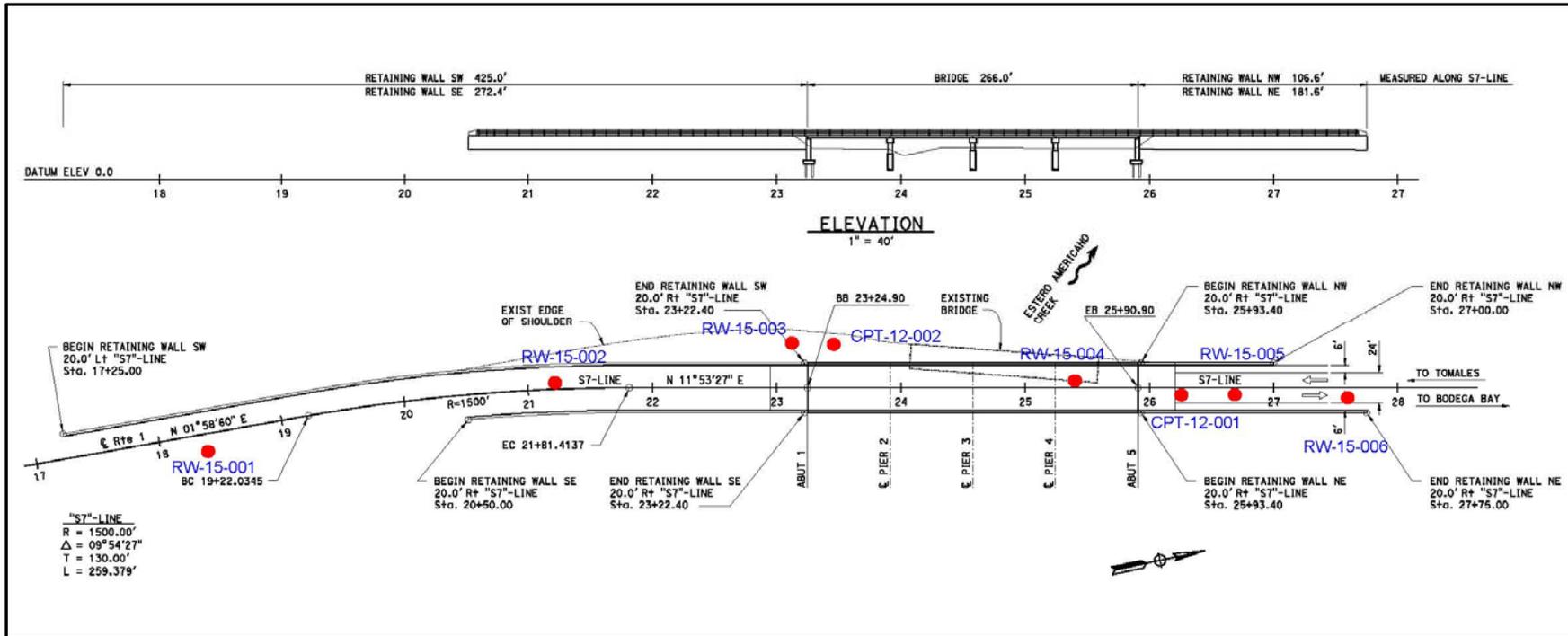


Figure 3 Location of Borings

*"Provide a safe, sustainable, integrated and efficient transportation system
 to enhance California's economy and livability"*

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Appendix A

Laboratory Test Results

“*Provide a safe, sustainable, integrated and efficient transportation system
to enhance California’s economy and livability*”

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Results sent to: CAROLINE CHEN

Division of Engineering Services
 Materials Engineering and Testing Services
 Corrosion and Structural Concrete Field Investigation Branch
 Report Date: 5/15/2015
 Reported by Michael Mifkovic

CORROSION TEST SUMMARY REPORT - SOIL

EA: **04-209501**

EFIS: **0412000116**

Dist/Co/Rte/PM **04 / MRN /001/ / 50.2-50.5 PM**

CORROSION			DEPTH (FT)		MINIMUM RESISTIVITY ¹	CHLORIDE CONTENT ²	SULFATE CONTENT ³	IS SAMPLE CORROSIVE?
LAB #	TL101 #	BORE #	START	END	(ohm-cm)	(ppm)	(ppm)	
SOIL SAMPLE FROM: ESTERO AMERICANO BRIDGE REPLACMT								
CR20150127	C704883	RW-15-005	15	17	2874			NO
CR20150128	C704834	RW-15-006	10	11	5380	21	27	NO

This site is not corrosive to foundation elements (see note below).

Note: For Structural Elements, the Department considers a site corrosive if one or more of the following conditions exist: pH is 5.5 or less, chloride concentration is 500 ppm or greater, sulfate concentration is 2000 ppm or greater. Resistivity is not considered for Structural Elements. MSE backfill shall conform to the requirements of section 47-2.02C Structure Backfill in the 2010 Standard Specifications.

¹CT 643, ²CT 422, ³CT 417

CR20150127 - CR20150128

5/15/2015

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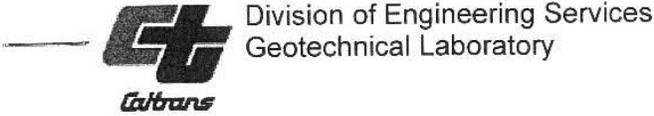


CALIFORNIA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL LABORATORY

GL TRACKING NO : 15-025
 Dist - EA: 04-209501
 Report Date: June 25, 2015
 Page: 1/1

CLASSIFICATION TEST SUMMARY

SAMPLE ID	% FINER THAN																	ATTERBERG LIMITS		AS RECEIVED		Gs	
	3"	2 1/2"	2"	1 1/2"	1"	3/4"	1/2"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200	5 μ	1 μ	LL	PI	Yd (pcf)	%m		
RW-15-001_3									100	98	95	88	74	61	23	6	3					24.1	
RW-15-001_4													100	99	78	19	8					19.0	
RW-15-002_2										100	99	98	93	73	56	10	6					25.9	
RW-15-003_2												100	99	93	41	13	9					22.7	
RW-15-003_3													100	97	42	10	5					31.9	
RW-15-004_2									100	99	99	98	97	89	42	12	7					25.5	
RW-15-004_3													100	99	97	19	9					10.7	
RW-15-005_15'-17'																							
RW-15-005_3									100	99	99	99	98	98	84	21	13		NP			25.1	
RW-15-005_a									100	92	92	92	92	91	80	24	14	36	18			14.3	
RW-15-006_10'-11'																							
RW-15-006_2										100	98	98	97	96	74	26	15	30	11			27.1	
RW-15-006_3											100	99	99	96	58	17	11					27.2	



Mechanical Analysis

ASTM D 422

Dist-EA: 04-209501
 Co-Rte-PM: MRN-1-50.2/50.5
 Sample ID: RW-15-005_a

GL Tracking No.: 15-025

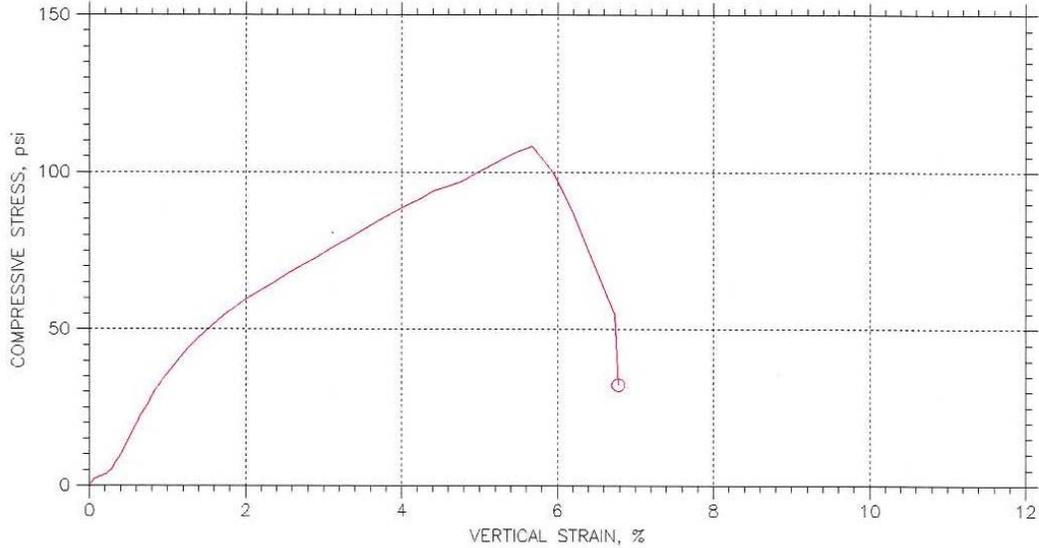
6-15-15
 JDD

SIEVE ANALYSIS						SAMPLE WEIGHT	
SIEVE SIZE	MICRON	GRAMS RETAINED	% RETAINED	% PASSING	COMBINED GRADING	NET WET WEIGHT	91.89 g
3"	76200				100	MOISTURE	0.0 %
2 1/2"	63500				100		
2"	50800				100	NET DRY WEIGHT	91.89 g
1 1/2"	38100				100		
1"	25400				100	SOIL CLASSIFICATION	
3/4"	19000				100		
1/2"	12500				100		
3/8"	9510				100	<1.0 MICRON (Colloids)	14 %
#4	4760				92	<5 microns (Clay)	24 %
#8	2380	0.00	0	100	92		
#16	1190	0.00	0	100	92	5 to 74 MICRONS (Silt)	56 %
#30	595	0.00	0	100	92		
#50	297	0.05	0	100	92	74 TO 4760 MICRONS (Sand)	11 %
#100	149	0.27	0	100	91		
#200	74	11.28	12	88	80	> 4760 MICRONS (Gravel)	8 %
PAN		31.09	34	66	61		
HYDROMETER ANALYSIS							
PERIOD	MICRONS	HYDRO. READING	HYDRO. TEMPERATURE	COMPOSITE CORRECTION	CORRECTED READING	% PASSING	COMBINED GRADING
1	5	29	73.0	-5	24	26	24
24	1	19	74.0	-5	14	15	14

REMARKS:

MR. DOUGLAS DUNRUD
 Attn: V. Ramakrishnan
 September 25, 2015
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UNCONFINED COMPRESSION TEST REPORT



Symbol	⊙		
Test No.	Q15-036		
Initial	Diameter, in		2.41
	Height, in		5.76
	Water Content, %		14.33
	Dry Density, pcf		117.6
	Saturation, %		
	Void Ratio		
Unconfined Compressive Strength, psi	108.4		
Undrained Shear Strength, psi			
Time to Failure, min			
Strain Rate, %/min	1		
Implied Specific Gravity			
Liquid Limit	---		
Plastic Limit	---		
Plasticity Index	---		
Failure Sketch			

	Project: Estero Americano Bridge
	Location: 04-MRN-1-50.2-54.6
	Project No.: Q15-0.36 04-209501
	Boring No.: RW-15-005-a
	Sample Type: Core
	Description: Moist; olive-brown clay w/silt
Remarks: ASTM D2166	W 9/28/15

FINAL HYDRAULIC REPORT

Estero Americano Bridge New Bridge No. 27-0121

(Old Bridge No. 27-0028)

04 – MRN – 01 – PM 50.5

EA No. 04-209501

EFIS No. 0412000116

Prepared by:



Genaro M. Doria, PE
Structure Hydraulics and Hydrology
May 12, 2015



Figure 1: Project Vicinity Map



Figure 2: Aerial of Project Location



General:

The proposed Estero Americano Bridge (Br. No. 27-0121) is located approximately 16 miles northwest of the City of Petaluma on State Route 1 in Marin County (see figure 1 & 2). This 1925 structure is an 8 span, 146 feet long by 24 feet wide continuous reinforced concrete (RC) slab. The superstructure is on RC three column bents and RC bent caps. The RC abutments are on unknown foundations.

According to the Structures Replacement and Improvement Needs (STRAIN) report, maintenance records and design recommendations, this structure does not meet the current design and safety standards and is structurally deficient. This bridge and the surrounding roadway periodically floods. This 90 year old structure has deteriorated significantly and repairing it would not be a viable solution.

Two alternatives have been proposed. Alternative 1 is a four span Precast Prestressed Concrete Slab. The superstructure would sit on two 3'-6" diameter column bents. Alternative 2 is similar, but the proposed superstructure is a Cast In Place Post Tensioned Prestressed Box Girder. Post the type selection meeting, alternative 1 was the preferred. Reasons for alternative 1 was the limited time to be working in the environmentally sensitive channel, construction time (accelerated bridge construction), and minimal false work in the creek bed.

This report makes extensive reference to: (1) The Estero Americano Watershed Management Plan, February 2007, (2) As-Built plans, (3) Bridge Inspection Records dating from 1925 to present.

All elevations given are referenced to the data provided by Structures Design and Preliminary Investigations-North, using the NAVD 88 Vertical Datum and NAD 83 State Plane Coordinates Horizontal Datum.

Basin:

The Estero Americano watershed is roughly 17.6 square miles, 7.6 miles in length, and drains the upper third of the Estero Americano Watershed before flowing into the tidal estuary at Valley Ford. The basin elevations range from 20 feet at the project site to over 900 feet near the English Hill area. The watershed is made up of foothills, pasture/grazing land, and agricultural land. Land near the project site is almost exclusively to pasture/grazing uses. Small, multigenerational family run dairies and livestock ranches are the mainstay of the local economy, and account for over 80 percent of land use in the watershed. While historical land ownership patterns have preserved large tracts of open space and critical habitat for wildlife, there is concern that erosion and agricultural run-off are impacting the natural resources and habitat values of the Estero and its tributaries. The lower two thirds of the Estero basin is considered seasonal estuary.

Tidal circulation in the Estero extends to just over four miles inland. Within the project limits, the Estero Americano Creek floodplain lays within a FEMA Zone A "The base floodplain mapped by approximate methods, *i.e.*, base flood elevation is not determined. This is often called an unnumbered A Zone or an approximate A Zone." The 2002 California Water Quality Assessment Report published by the State Water Resources Control Board listed 199 acres of the Estero Americano and the entire length of Americano Creek as impaired water bodies due to nutrient pollution from agricultural sources. The Estero Americano is also listed as impaired due to sedimentation/siltation.

Most of the seasonal flows generally occur during the months of October through April. Average annual precipitation ranges from 30 to 50 inches from the lower coastal area to the upper foothill headwaters. The average annual precipitation at the bridge site is near 38 inches.

Tidal Influence, Sea Level Rise, & Tsunami Hazard:

The project site is located on the north coast of California east of Bodega Bay and the Gulf of the Farallones National Marine Sanctuary. It is estimated that the bridge site is not influenced by tsunami inundation and sea level rise effect. Sea Level Rise (SLR) was not included in the hydraulics/hydrology at the project site. The forecasted SLR of 66 inches for the year 2100 should not affect the floodplain in the general vicinity of project site. The project site is located 8.5 miles upstream of the Pacific Ocean. According to The Estero Americano Watershed Management Plan, the tidal circulation in the Estero extends to just over four miles inland. The channel bottom elevation at the bridge site is near of 20 feet. Aerial photography, satellite images, survey elevations, and the map defining the limit of tidal influence from the Estero Americano Watershed Management Plan (page 10) were used to determine that tidal tail water does not impact the project site.

In this region, the ocean plate is descending below the continental plate at the Cascadia Subduction Zone, pushing up the coast. Tsunami events occur when an underwater disturbance triggers a series of waves. The "Probabilistic Tsunami Hazard in California Report", published by the Pacific Earthquake Research Center dated October 2010, listed the tsunami wave height at 3.28 feet for a 100 year return period. The study site was located at Fort Bragg which is north of Bodega Bay. It is not anticipated that a Tsunami and the 100-year flood frequency event will happen at the same time.

Streambed:

The natural channel bed material consists of alluvium deposits consisting of sand, silt, and clay. At deeper subsurface elevations (5-23 feet), the materials are described as very stiff sandy clay, dense sand, and silt. Future borings anticipate rock or dense soils beyond 23 feet. This description is from the preliminary

foundation report written by Caroline Chen, January 30, 2015. A Final Structure Foundations Report will determine whether the proposed foundations will sit on scour resistant material. A scourable channel bed material will be used for scour calculations until it is determined in the Final Structure Foundation Report how deep the proposed foundations should be.

Sediment/Scour:

There is no major channel degradation that has occurred in the last 90 years. An estimated 1 million cubic yards of sediment was deposited in the Estero Estuary between 1850 and 1953 when potato farming was common. Today there are no large-scale cultivated crops grown in the watershed, and only a few hay fields.

Waterways and upland slopes in the watershed are still adjusting to the effects of historic crop farming on land characterized by highly erodible soils, steep slopes, and unstable geologic material. Changes to watershed hydrology from physical modification of drainages and concentration of flows over disturbed ground have led to dramatic increases in sheet and rill formation as well as gully development. The long term impacts of these changes to watershed hydrology and sediment transport include: loss of estuarine and riparian, degraded fisheries, increased flooding from channel aggradations, and the loss of production soils and agricultural land.

Stream erosion in the main stem of Americano Creek and the lower reaches of tributaries are currently high. Contraction scour and long-term degradation do not appear to be a major concern at this location. The channel geometry of Americano Creek, the main tributary to the Estero, is predominantly rectangular and much wider in most areas than it would be naturally. Fine sediment (sand, silt) deposition in the channel bottom is excessive, and resulting aggradations of the stream channel relative to bank height is reported to exacerbate local flooding problems. Sediment transport during storm events is high, and based on deposition patterns in the streambed; the supply of fine sediment to Americano Creek significantly exceeds the carrying capacity of the stream. Local pier scour for the proposed foundations will be considered for the design of new structure and possible future conditions. Future conditions could include channel clearing and change of slope and deposition due to this. See Table 1 for estimated values.

Scour was estimated utilizing the methods set forth in the FHWA HEC-18, "Evaluating Scour at Bridges." All scour elevations are based on the 100-year discharge.

Based on a comparison of historical channel cross-sections taken at the existing Route 41 structure, the channel has been stable. At the bridge site, the slope is fairly flat to mild with a gradient of approximately 0.0027 ft/ft. No channel degradation will be added to total potential scour. Contraction scour is calculated with the abutment scour, for a total potential abutment scour depth of 10 feet. This is calculated using

the NCHRP formula of the HEC-18 manual 8.6.3. For the 100-year flows, the highest velocity at the proposed abutment 1 structure was calculated near 8.0 feet per second.

The channel thalweg elevation is near 21.0 feet. Lateral channel migration was included to calculate the local pier scour for piers 2 through 4. A total potential pier scour was calculated to be 8 feet, using the HEC-18 5th edition, page 7.3. All footing elevations may be placed to the same elevation. See Table 1 for elevations. Structure Foundations and Geology will need to be consulted on the design and elevations of all foundations.

Discharge:

The Estero Americano basin is an ungaged site, no information for a flood of record could be found. The HEC-1 module within HEC-HMS version 3.5 was used to assist in the estimation of the 100-year and 50-year flood frequency discharges. A unit hydrograph was developed using the SCS 24-Hour precipitation. The estimated Q100 and Q50 discharges are 6,175 cfs and 5,380 cfs, respectively.

Hydraulic Analysis:

The channel hydraulics was modeled using the Surface-Water Modeling System (SRH-2Dimensional) program, version 12.0. A terrain surface was made utilizing survey data, LiDAR and Bathymetry data provided by Preliminary Investigations-North Survey group.

Several different roughness coefficients were used based on the particular characteristics. Areas varied from grassy overbanks, heavy tree/bush channel bed, heavy tree lined banks, and paved roadway. A manning's roughness coefficient of 0.03 was used in the main channel reach and 0.05 in the overbank areas.

For the 100-year and 50-year event, the proposed structure replacement has approximate water surface elevations of 30.4 feet and 29.8 feet, respectively. The calculated water surface elevation for existing condition is 30.1 feet for 100-year discharge. Total water surface elevation change is 0.3 feet. The slight change in water surface elevation is offset by allowing the route to be open to the traveling public during a 100-year flood frequency event (see figure 3 and 4) before and after construction. The memo provided on July 1, 2014, defined and quantified the floodplain impacts due to the proposed bridge and roadway profile change (see figure 5).

Drift:

According to the Maintenance Records there is a history of minor drift/debris problems. Structure Hydraulics recommends adding 1 foot of clearance over the 50-

year flood frequency water surface elevation. See Table 1, for the recommended minimum soffit elevation due to drift/debris.

Summary Tables:

Table 1:

Hydrologic Summary for			
Estero Americano Bridge, 27-0121			
Drainage Area: 17.6 mi ²			
Frequency	Design Flood	Base Flood	Channel Capacity
	50-year	100-year	N/A
Discharge	5,380 cfs	6,174 cfs	N/A
Proposed Water Surface Elevation at u/s Face of Bridge	29.8 ft	30.4 ft	N/A
Flood plain data are based upon information available when the plans were prepared and are shown to meet federal requirements. The accuracy of said information is not warranted by the State and interested or affected parties should make their own investigation.			
Minimum Soffit Elevation	30.8 ft		
Local Pier Scour Depths*	8.0 ft		
Abument Scour Depths*	10.0 ft		
Local Pier Scour Elevations*	13.0 ft		
Abutment Scour Elevations*	14.0 ft		

* Pending Geotechnical Foundation Report recommendations.

This report has been prepared under my direction as the professional engineer in responsible charge of the work, in accordance with the provisions of the Professional Engineers Act of the State of California.

Figure 3: Looking at existing Q100 flood conditions. Route inundated.



Figure 4: Looking at proposed 266 ft. long bridge at Q100 flood conditions. Route not inundated



Figure 5: Looking at increased floodplain area (blue) due to proposed 266 ft bridge and vertical change of roadway profile at project site.

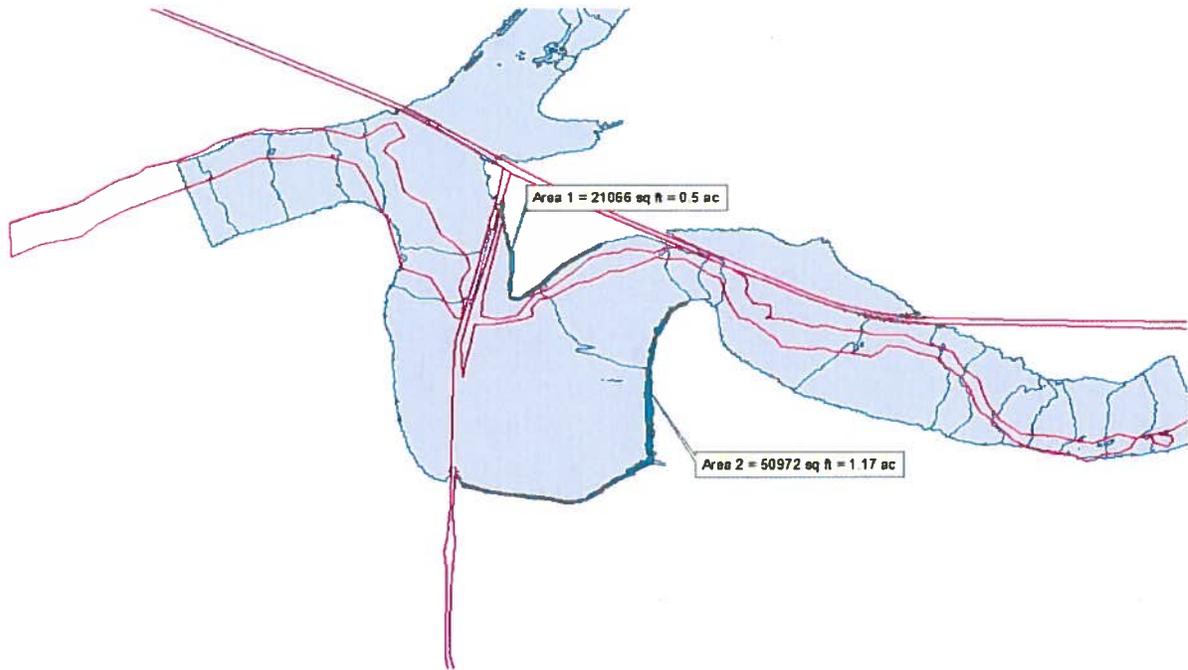


Figure 6: Looking at velocity vectors for proposed site conditions

