FOR CONTRACT NO.: 03-4E590**4**

INFORMATION HANDOUT

WATER QUALITY

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

WDID#5B09CR00021

PERMITS

UNITED STATES ARMY CORPS OF ENGINEERS
NON-REPORTING NATIONWIDE 404 PERMIT

AGREEMENTS

CALIFORNIA DEPARTMENT OF FISH AND GAME
NOTIFICATION NO. 1600-2012-0133-R2

MATERIALS INFORMATION

GEOTECHNICAL DESIGN REPORT

ROUTE: 03-ED-49-3.8

TC

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

12 December 2012

Clark Peri
California Department of Transportation
2379 Gateway Oaks Drive, Suite 150
Sacramento, CA 95833

CERTIFIED MAIL
7011 2970 0003 8939 7509

CLEAN WATER ACT §401 TECHNICALLY CONDITIONED WATER QUALITY CERTIFICATION; CALIFORNIA DEPARTMENT OF TRANSPORTATION, STATE ROUTE 49 CURVE CORRECTION PROJECT (WDID#5B09CR00021), EL DORADO COUNTY

This Order responds to your 20 July 2012 application submittal for the Water Quality Certification of a road improvement project permanently impacting 0.01 acre/70 linear feet of the United States.

This Order serves as certification of the United States Army Corps of Engineers' Nationwide Permit #18 (SPK# 2012-00521) under § 401 of the Clean Water Act, and a Waste Discharge Requirement under the Porter-Cologne Water Quality Control Act.

WATER QUALITY CERTIFICATION STANDARD CONDITIONS:

1. This Order serves as a Water Quality Certification (Certification) action that is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to § 13330 of the California Water Code and § 3867 of the California Code of Regulations.

2. 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 § 3855(b) of the California Code of Regulations, and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

3. The validity of any non-denial Certification action shall be conditioned upon total payment of the full fee required under § 3833 of the California Code of Regulations, unless otherwise stated in writing by the certifying agency.

4. This Certification is valid for the duration of the described project. This Certification is no longer valid if the project (as currently described) is modified, or coverage under § 404 of the Clean Water Act has expired.

5. All reports, notices, or other documents required by this Certification or requested by the Central Valley Regional Water Quality Control Board (Central Valley Water Board) shall be signed by a person described below or by a duly authorized representative of that person.

   (a) For a corporation: by a responsible corporate officer such as (1) a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function; (2) any other person who performs similar policy or decision-making functions for the corporation; or (3) the manager of one or more manufacturing, production, or operating facilities if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
   (b) For a partnership or sole proprietorship: by a general partner or the proprietor.
   (c) For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official.

6. Any person signing a document under Standard Condition number 5 shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

TECHNICAL CERTIFICATION CONDITIONS:

In addition to the above standard conditions, the California Department of Transportation shall satisfy the following:

1. The California Department of Transportation shall notify the Central Valley Water Board in writing 7 days in advance of the start of any work within waters of the United States. The notification shall include the name of the project and the WDID number, and shall be sent to the Central Valley Water Board Contact indicated in this Certification.

2. Except for activities permitted by the United States Army Corps of Engineers under § 404 of the Clean Water Act, soil, silt, or other organic materials shall not be placed where such materials could pass into surface water or surface water drainage courses.

3. The California Department of Transportation shall maintain a copy of this Certification and supporting documentation (Project Information Sheet) at the Project site during construction for review by site personnel and agencies. All personnel (employees, contractors, and subcontractors) performing work on the proposed project shall be adequately informed and trained regarding the conditions of this Certification.

4. The California Department of Transportation shall perform surface water sampling: 1) when performing any in-water work; 2) in the event that project activities result in any materials reaching surface waters; or 3) when any activities result in the creation of a visible plume in surface waters. The monitoring requirements in Table 1 shall be conducted upstream out of the influence of the project, and 300 feet downstream of the work area. The sampling frequency may be modified for certain projects with written approval from Central Valley Water Board staff.

Table 1:

Parameter	Unit	Type of Sample	Minimum Sampling Frequency	Required Analytical Test Method
Turbidity	NTU	Grab[1]	Every 4 hours during in-water work	(2)
Settleable Material	mL/L	Grab[1]	Every 4 hours during in-water work	(2)
Visible construction related pollutants [3]	Observations	Visual Inspections	Continuous throughout the construction period	—

(1) Grab sample shall not be collected at the same time each day to get a complete representation of variations in the receiving water.

(2) Pollutants shall be analyzed using the analytical methods described in 40 Code of Federal Regulations Part 136; where no methods are specified for a given pollutant, method shall be approved by Central Valley Water Board staff.

(3) Visible construction-related pollutants include oil, grease, foam, fuel, petroleum products, and construction-related, excavated, organic or earthen materials.

A surface water monitoring report shall be submitted to the Central Valley Water Board Contact indicated in this Certification within two weeks of initiation of sampling and every two weeks thereafter. In reporting the monitoring data, the California Department of Transportation shall arrange the data in tabular form so that the sampling locations, date, constituents, and concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the project complies with Certification requirements. The report shall include surface water sampling results, visual observations, and identification of the turbidity increase in the receiving water applicable to the natural turbidity conditions specified in the turbidity criteria below.

5. The Central Valley Water Board adopted a *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fourth Edition, revised October 2011 (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Turbidity and settleable matter limits are based on water quality objectives contained in the Basin Plan and are part of this Certification as follows:

A. Activities shall not cause turbidity increases in surface water to exceed:

i. where natural turbidity is less than 1 Nephelometric Turbidity Units (NTUs), controllable factors shall not cause downstream turbidity to exceed 2 NTUs;
ii. where natural turbidity is between 1 and 5 NTUs, increases shall not exceed 1 NTU;
iii. where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent;
iv. where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs; and
v. where natural turbidty is greater than 100 NTUs, increases shall not exceed 10 percent.

Except that these limits will be eased during in-water working periods to allow a turbidity increase of 15 NTUs over background turbidity. In determining compliance with the above limits, appropriate averaging periods may be applied provided that beneficial uses will be fully protected. Averaging periods may only be used with prior approval of the Central Valley Water Board staff.

B. Activities shall not cause settleable matter to exceed 0.1 mL/L in surface waters as measured in surface waters within 300 feet downstream of the project.

6. The California Department of Transportation shall notify the Central Valley Water Board immediately if the above criteria for turbidity, settleable matter, or other water quality objectives are exceeded.

7. The discharge of petroleum products or other excavated materials to surface water is prohibited. Activities shall not cause visible oil, grease, or foam in the receiving water. The California Department of Transportation shall notify the Central Valley Water Board immediately of any spill of petroleum products or other organic or earthen materials.

8. The California Department of Transportation shall comply with all California Department of Fish and Game requirements, including but not limited to those requirements described in Lake or Streambed Alteration Agreement No. 1600-2012-0133-R2.

9. The use of netting material (e.g., monofilament-based erosion blankets) that could trap aquatic dependent wildlife is prohibited within the project area, as indicated in the attached map (Figure 1).

10. All temporarily affected areas will be restored to pre-construction contours and conditions upon completion of construction activities.

11. All areas disturbed by project activities shall be protected from washout or erosion.

12. In-stream work will occur during periods of low flow and no precipitation.

13. This Certification does not allow permanent water diversion of flow from the receiving water. This Certification is invalid if any water is permanently diverted as a part of the project.

14. Refueling of equipment within the floodplain or within 300 feet of the waterway is prohibited. If critical equipment must be refueled within 300 feet of the waterway, spill prevention and countermeasures must be implemented to avoid spills. Refueling areas shall be provided with secondary containment including drip pans and/or placement or absorbent material. No hazardous materials, pesticides, fuels, lubricants, oils, hydraulic fluids, or other construction-related potentially hazardous substances should be stored within a floodplain or within 300 feet of a waterway. The California Department of Transportation must perform frequent inspections of construction equipment prior to utilizing it near surface waters to ensure leaks from the equipment are not occurring and are not a threat to water quality.

15. The California Department of Transportation shall develop and maintain onsite a project-specific Spill Prevention, Containment and Cleanup Plan outlining the practices to prevent, minimize, and/or clean up potential spills during construction of the project. The Plan must detail the project elements, construction equipment types and location, access and staging and construction sequence. The Plan must also address the potential of responding to a spill or prevention of spills occurring within the project site.

16. During construction, silt fencing, straw wattles, or other effective management practices must be used along the construction zone to minimize soil or sediment along the embankments from migrating into the waters of the United States.

17. All materials resulting from the project shall be removed from the site and disposed of properly.

18. If unanticipated discharges to the waters of the United States and/or soil occur, the California Department of Transportation shall notify the Central Valley Water Board Contact indicated in this Certification in writing within 5 calendar days of occurrence. Unanticipated discharges may include, but are not limited to, any construction materials, hazardous materials, pesticides, fuels, lubricants, oils, hydraulic fluids, raw cement, concrete, asphalt, paint, coating material, drilling fluids, or other construction-related potentially hazardous substances.

19. The California Department of Transportation shall obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWQ for discharges to surface waters comprised of storm water associated with construction activity, including but not limited to demolition, clearing, grading, excavation, and other land disturbance activities of one or more acres, or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres.

20. The Conditions in this Certification are based on the information in the attached "Project Information Sheet." If the actual project, as described in the attached Project Information Sheet, is modified or changed, this Certification is no longer valid until amended by the Central Valley Water Board.

21. The California Department of Transportation shall implement each of the mitigation measures specified in the approved Mitigated Negative Declaration for the project, as they pertain to biology, hydrology and water quality impacts as required by § 21081.6 of the Public Resource Code and CEQA Guidelines, § 15097 of the California Code of Regulations.

22. 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 state and federal law. The applicability of any state law authorizing remedies, penalties, process, or sanctions for the violation or threatened violation constitutes a limitation necessary to ensure compliance with this Certification.

    (a) If the California Department of Transportation or a duly authorized representative of the project fails or refuses to furnish technical or monitoring reports, as required under this Certification, or falsifies any information provided in the monitoring reports, the applicant is subject to civil liability, for each day of violation, and/or criminal liability.
    (b) In response to a suspected violation of any condition of this Certification, the Central Valley Water Board may require the California Department of Transportation to furnish, under penalty of perjury, any technical or monitoring reports the Central Valley Water Board deems appropriate, provided that the burden, including cost of the reports, shall be in reasonable relationship to the need for the reports and the benefits to be obtained from the reports.
    (c) The California Department of Transportation shall allow the staff(s) of the Central Valley Water Board, or an authorized representative(s), upon the presentation of credentials and other documents, as may be required by law, to enter the project premises for inspection, including taking photographs and securing copies of project-related records, for the purpose of assuring compliance with this Certification and determining the ecological success of the project.

23. The California Department of Transportation shall provide a Notice of Completion (NOC) no later than 30 days after the project completion. The NOC shall demonstrate that the project has been carried out in accordance with the project description in the Certification and in any amendments approved. The NOC shall include a map of the project location(s), including final boundaries of any on-site restoration area(s), if appropriate, and representative pre and post construction photographs. Each photograph shall include a descriptive title, date taken, photographic site, and photographic orientation.

CENTRAL VALLEY WATER BOARD CONTACT:

Trevor Cleak, Environmental Scientist
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-8114
tcleak@waterboards.ca.gov
(916) 464-4684

CALIFORNIA ENVIRONMENTAL QUALITY ACT:

The California Department of Transportation is the Lead Agency responsible for compliance with the California Environmental Quality Act for the State Route 49 Curve Correction Project pursuant to § 21000 et seq. of the Public Resources Code. The California Department of Transportation certified the Mitigated Negative Declaration on 19 December 2011 (State Clearinghouse Number 2011062033).

The Central Valley Water Board is a responsible agency for the project. The Central Valley Water Board has determined that the Mitigated Negative Declaration is in accordance with with the requirements of the California Environmental Quality Act and is valid pursuant § 21167.3(b) of the Public Resources Code.

The Central Valley Water Board has reviewed and evaluated the potentially significant impacts to water quality identified in the Mitigated Negative Declaration. The mitigation measures are required by this Certification.

With regard to the remaining impacts, identified in the Mitigated Negative Declaration the corresponding mitigation measures proposed are within the responsibility and jurisdiction of other public agencies.

WATER QUALITY CERTIFICATION:

I hereby issue an Order certifying that any discharge from the California Department of Transportation, State Route 49 Curve Correction Project (WDID#5B09CR00021) will comply with the applicable provisions of § 301 ("Effluent Limitations"), § 302 ("Water Quality Related Effluent Limitations"), § 303 ("Water Quality Standards and Implementation Plans"), § 306 ("National Standards of Performance"), and § 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act. This discharge is also regulated under State Water Resources Control Board Water Quality Order No. 2003-0017 DWQ "Statewide General Waste Discharge Requirements For Dredged Or Fill Discharges That Have Received State Water Quality Certification (General WDRs)".

Except insofar as may be modified by any preceding conditions, all Certification actions are contingent on (a) the discharge being limited and all proposed mitigation being completed in compliance with the conditions of this Certification, the California Department of Transportation's application package, and the attached Project Information Sheet, and (b) compliance with all applicable requirements of the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fourth Edition, revised October 2011.

for Pamela C. Creedon
Executive Officer

Enclosure: Project Information

Attachment: Figure 1 – Project Location Map

cc: Distribution List, page 11

PROJECT INFORMATION SHEET

Application Date: 20 July 2012

Applicant: Clark Peri
California Department of Transportation
2379 Gateway Oaks Drive, Suite 150
Sacramento, CA 95833

Applicant Representatives: Kelley Nelson
California Department of Transportation
703 B Street
Marysville, CA 95901

Project Name: State Route 49 Curve Correction Project

Application Number: WDID#5B09CR00021

Type of Project: Road improvement project

Timeframe of Project Implementation: 1 May through 15 October

Project Location: Section 26, Township 9 North, Range 10 East, MDB&M.
Latitude: 38°36'03"N and Longitude: 120°51'07" W

County: El Dorado County

Receiving Water(s) (hydrologic unit): Unnamed Drainages, tributary of the Cosumnes River, San Joaquin Hydrologic Basin, Middle Sierra Hydrologic Unit #532.23, North Fork Cosumnes HSA

Water Body Type: Riparian, Streambed

Designated Beneficial Uses: The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fourth Edition, revised October 2011 (Basin Plan) has designated beneficial uses for surface and ground waters within the region. Beneficial uses that could be impacted by the project include, but are not limited to: Municipal and Domestic Water Supply (MUN); Agricultural Supply (AGR); Industrial Supply (IND); Hydropower Generation (POW); Groundwater Recharge (GWR); Water Contact Recreation (REC-1); Non-Contact Water Recreation (REC-2); Warm Freshwater Habitat (WARM); Cold Freshwater Habitat (COLD); Preservation of Biological Habitats of Special Significance (BIOL); Rare, Threatened, or Endangered Species (RARE); Migration of Aquatic Organisms (MIGR); Spawning, Reproduction, and/or Early Development (SPWN); and Wildlife Habitat (WILD). A comprehensive and specific list of the Beneficial Uses applicable for the project area can be found at http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/index.shtml.

303(d) List of Water Quality Limited Segments: The Cosumnes River is the receiving water for the State Route 49 Curve Correction Project.

The Cosumnes River is listed on the 303(d) list for invasive species. This project does not impact an already impaired water body. The most recent list of approved water quality limited segments can be found at:
http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml.

Project Description: The 3.60-acre State Route 49 Curve Correction Project consists of adjusting a curve on State Route 49 to improve road safety and reduce traffic collisions. The project is located on State Route 49, 0.8 miles northwest of Pretty Penny Lane and 6 miles south of El Dorado, in El Dorado County.

The project will eliminate the road curve, widen the shoulders from 1-foot to 4-feet wide, and widen two lanes from 11-feet to 12-feet. Two drainages flow through the project site. The first drainage flows through an existing 12-inch metal culvert on the north end of the project. The 12-inch culvert will be replaced with an 18-inch culvert and lengthened by 10-feet. A drainage outlet will be installed and rocks will be placed at the outlet.

The second drainage flows through two different culverts on the project site. The first culvert is 24-inches in diameter, 108.5-feet long, and runs under a private driveway. The second culvert is 90-inches in diameter, 40-feet long, and downstream on the first culvert. The first culvert will be shortened to 63 feet and the second culvert will be lengthened to 83 feet. Rocks will be placed at the outlet of both culverts and at the inlet of the second culvert. The material used for the culvert extension is yet to be determined.

Construction parking and staging areas will be confined to previously disturbed areas. Dredging and grading will be required to prepare the drainages for the culvert extensions. There are no proposed wing walls constructed for this project therefore no concrete will be placed into the drainages. There is no proposed dewatering or diversions in the project area.

The project will permanently impact 0.01 acre/70 linear feet of waters of the United States.

Preliminary Water Quality Concerns: Construction activities may impact surface waters with increased turbidity and settleable matter.

Proposed Mitigation to Address Concerns: The California Department of Transportation will implement Best Management Practices to control sedimentation and erosion. All temporary affected areas will be restored to pre-construction contours and conditions upon completion of construction activities. The California Department of Transportation will conduct turbidity and settleable matter testing during in-water work, stopping work if of Basin Plan criteria are exceeded or are observed.

Excavation/Fill Area: Approximately 22 cubic yards of rock will be placed into 0.01 acre of waters of the United States.

Dredge Volume: Approximately 2.08 cubic yards of native soil will be dredged from 0.01 acre of waters of the United States.

United States Army Corps of Engineers File Number: SPK# 2012-00521

United States Army Corps of Engineers Permit Type: Nationwide Permit #18

California Department of Fish and Game Lake or Streambed Alteration Agreement: 1600-2012-0133-R2.

Possible Listed Species: California red-legged frog

Status of CEQA Compliance: The California Department of Transportation certified the Mitigated Negative Declaration on 19 December 2011. The California Department of Transportation filed a Notice of Determination with the State Clearinghouse on 21 December 2011 (State Clearinghouse Number 2011062033).

The Central Valley Water Board filed a Notice of Determination with the State Clearinghouse as a responsible agency within 5 days of the date of this Certification..

Compensatory Mitigation: The Central Valley Water Board is not requesting compensatory mitigation for the State Route 49 Curve Correction Project.

Application Fee Provided: Total fees of $1,605.00 have been submitted to the Central Valley Water Board as required by § 3833(b)(3)(A) and § 2200(a)(3) of the California Code of Regulations.

DISTRIBUTION LIST

Leah Fisher
United States Army Corps of Engineers
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1325 J Street, Suite 1350
Sacramento, CA 95814-2922

Tim Nosal
Department of Fish and Game
1701 Nimbus Road
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CA Sportfishing Protection Alliance
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Bill Orme (Electronic copy only)
State Water Resources Control Board
401 Certification and Wetlands Unit Chief

Jason A. Brush (Electronic copy only)
Wetlands Office Supervisor (WTR-8)
United States Environmental Protection Agency

Kelley Nelson
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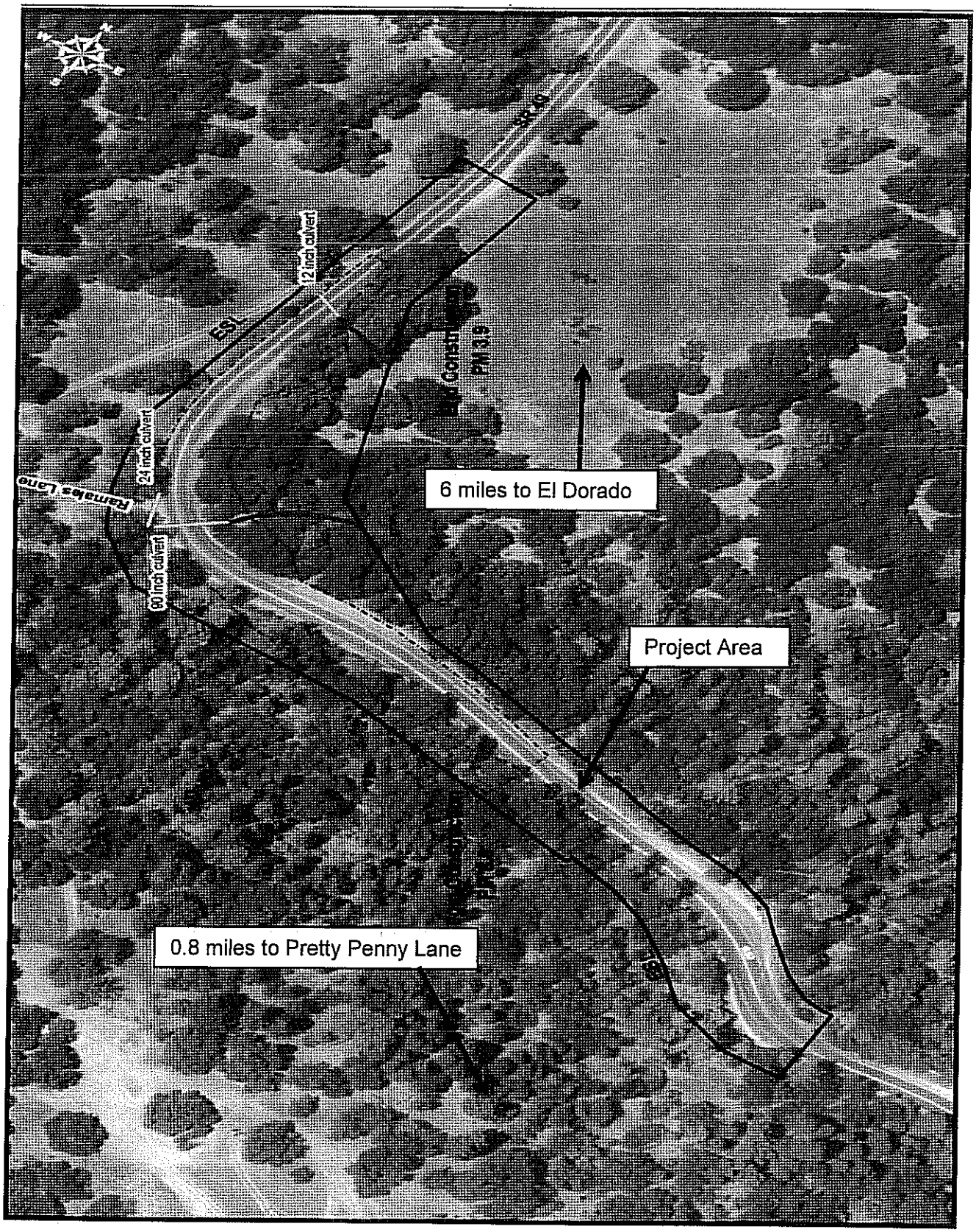


Figure 1 – Project Location Map

Non-reporting NWP 18

U.S. Army Corps of Engineers

South Pacific Division

Nationwide Permit Pre-Construction Notification (PCN) Form

This form integrates requirements of the U.S. Army Corps of Engineers Nationwide Permit Program within the South Pacific Division (SPD), including General and Regional Conditions. You MUST fill out all boxes related to the work being done. Fillable boxes in this form expand if additional space is needed.

Box 1 Project Name El Dorado 49 Curve Correction Project			
Applicant Name Clark Peri		**Applicant Title** Project Manager	
Applicant Company, Agency, etc. California Department of Transportation (Caltrans)		Applicant's internal tracking number (if any) EA: 4E590/EFIS: 03-0000-0711	
Mailing Address 2379 Gateway Oaks Drive, Suite 150, Sacramento, CA 95833			
Work Phone with area code (916) 274-0538	Mobile Phone with area code N/A	Home Phone with area code N/A	Fax # with area code (916) 274-0684
E-mail Address Clark_Peri@dot.ca.gov	Relationship of applicant to property: ☒Owner ☐ Purchaser ☐ Lessee ☐ Other:		
Application is hereby made for verification that subject regulated activities associated with subject project qualify for authorization under a U.S. Army Corps of Engineers Nationwide Permit or Permits as described herein. I certify that I am familiar with the information contained in this application and, that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities. I hereby grant to the agency to which this application is made the right to enter the above-described location to inspect the proposed, in-progress or completed work. I agree to start work only after all necessary permits have been received and to comply with all terms and conditions of the authorization.			
Signature of applicant Clark Peri			Date (mm/dd/yyyy) 07/05/2012

If anyone other than the person named as the Applicant will be in contact with the U.S. Army Corps of Engineers representing the Applicant regarding this project during the permit process, Box 2 MUST be filled out.

Box 2 Authorized Agent/Operator Name Kelley Nelson		**Agent/Operator Title** Project Biologist	
Agent/Operator Company, Agency, etc. Caltrans		E-mail Address Kelley_Nelson@dot.ca.gov	
Mailing Address 703 B STREET, MARYSVILLE, CA 95901			
Work Phone with area code 530-741-4583	Mobile Phone with area code N/A	Home Phone with area code N/A	Fax # with area code 530-741-4457
I hereby authorize the above named authorized agent to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application. I understand that I am bound by the actions of my agent and I understand that if a federal or state permit is issued, I, or my agent, must sign the permit.			
Signature of applicant Clark Peri			Date (mm/dd/yyyy) 07/05/2012
I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true, complete, and accurate.			
Signature of authorized agent Kelley Nelson			Date (mm/dd/yyyy) 7/5/2012

Revised March 21, 2012. For the most recent version of this form, visit your Corps District's Regulatory website.

Signature of authorized agent	Date (mm/dd/yyyy)

Box 3 Name of Property Owner(s), if other than Applicant: 1) MARC REGELBRUGGE, 2) KENNETH AND MARINA RAMOS, 3) HAYDEN WATSON		
Owner Title N/A	**Owner Company, Agency, etc.** N/A	
Mailing Address 1) 540 Emerald Hills, CA 94062, 2) P.O. Box 1443, El Dorado, CA 95623, 3) 2622 SW Glacier Pl #110, Redmond, OR 97756		
Work Phone with area code N/A	Mobile Phone with area code N/A	Home Phone with area code N/A

Box 4 Name of Contractor(s) (if known): NOT KNOWN AT THIS TIME		
Contractor Title	**Contractor Company, Agency, etc.**	
Mailing Address		
Work Phone with area code	Mobile Phone with area code	Home Phone with area code

Box 5 Site Number 1 **of** 1**. Project location(s), including street address, city, county, state, zip code where proposed activity will occur:** THE PROJECT IS LOCATED IN EL DORADO COUNTY ON STATE ROUTE (SR) 49. IT IS APPROXIMATELY SIX MILES SOUTH OF THE TOWN OF EL DORADO, BETWEEN POST MILES (PM) 3.8 AND 3.9. THE PROJECT IS APPROXIMATELY 11 MILES SOUTHWEST OF THE CITY OF PLACERVILLE. (SEE ATTACHMENT A FOR PROJECT LOCATION MAPPING.)	
Waterbody (if known, otherwise enter "an unnamed tributary to"):Two un-named ephemeral tributaries Tributary to what known, downstream waterbody:North Fork of the Cosumnes River	
Latitude & Longitude (D/M/S, DD, or UTM with Zone): 38 degrees 36' 03"N, 120 degrees 51' 07"W	Section, Township, Range: Section 26, T 9 N, R 10 E
County Assessor Parcel Number (Include County name): 092-43-019, 092-43-002, 092-43-034 Please note: the majority of the project area is owned by Caltrans. Private residences adjoin the project area. Caltrans will have temporary construction easements (TCEs) and will purchase the portions of these parcels that will be impacted by the project.	USGS Quadrangle map name: Fiddletown
Watershed (HUC and watershed name[1]):HUC: 18040013 - Upper Cosumnes [1]http://water.usgs.gov/GIS/regions.html	Size of permit area or project boundary: 2.5 total acres linear feet

Directions to the project location and other location descriptions, if known:
From Sacramento, drive east on Highway 50, take the Shingle Springs off-ramp, make a right on Pleasant Valley Road, stay on this road until you come to the town of El Dorado. Make a right onto SR 49, and follow it for approximately six miles to the project site.

Nature of Activity (Description of the project, include all features):
In order to reduce the potential for future collisions, Caltrans is proposing to eliminate a compound curve, and replace it with a single radius curve, along with other safety measures listed below. The curve is located between Post Miles (PM) 3.8 and 3.9 in El Dorado County on State Route (SR) 49.

The project is contained within the Fiddletown 7.5-minute United States Geological Society (USGS) quadrangle map. The coordinates are: T9N, R10E, Sec 26, SW ¼. Latitude and longitude are 38 degrees 36'03"N, 120 degrees 51'07"W. The project is located in the southwest portion of El Dorado County on SR49 between PM 3.8 and 3.9. It is approximately 11 miles southwest of the City of Placerville, and 6 miles south of the town of El Dorado. It is within the Upper Cosumnes watershed area within the Sierra Nevada Mountain Range. See Attachment A for a project location map.

There has been a pattern of single vehicle, run-off-road (ROR) collisions that have occurred at this location. In a 5-year report beginning in January of 2001 and ending in December of 2005, there were 18 ROR collisions with 14 of those resulting in injuries. The purpose of this project is to improve the safety of this curve.

In order to improve safety, the project proposes to eliminate a compound curve and replace it with a single radius curve, widen the shoulders to 4 feet (from approximately 1 foot), and widen the two lanes from the current 11 feet to 12 feet. As part of this work, an existing 12-inch corrugated metal pipe (CMP)/culvert on the north end of the project (PM 3.9) will be replaced with an 18 inch culvert, extended 10 feet at the outlet, and a drainage inlet will be installed to accommodate the resulting lower flowline. This small drainage most likely connects to the north fork of the Cosumnes River which is approximately 0.6 mile away.

The inlet of this system, located on the west side of SR 49, functions in delivering roadside/hillside run-off through the culvert to the east side of SR 49 and into a small ephemeral channel. A ditch runs downhill/south from this inlet along the toe of the slope on the west side of SR 49, capturing roadside and hillside run-off and carrying it to a culvert that runs under Ramales Lane (a private driveway in the middle of the curve radius) and empties into a channel on the south side of Ramales Lane. The existing 108.5 foot long, 24 inch wide culvert that crosses under Ramales Lane will be replaced with a new, 63 foot long, 24 inch wide culvert and a drainage inlet will be installed on the north side of Ramales Lane to capture roadside runoff.

The channel this culvert empties into contains the inlet of a 90 inch culvert which carries water from an ephemeral drainage, under SR 49, and downhill where it eventually empties into the north fork of the Cosumnes River. This 90" culvert will be extended 25 feet at the outlet, and 18 feet at the inlet. See Attachment B for an aerial map of the project area with Design details.

Per a public comment regarding how this large culvert could potentially act as a wildlife undercrossing (Caltrans traffic data shows that animal mortality is rare within and adjacent to the project site), it is being extended straight out from its current location rather than having a bend put in at the outlet, where it is currently perched. At the new outfall area, a very shallow (20:1) "v-shaped" drainage area will be created in an upland area, and a 1.5 feet deep rock energy dissipator (RED) will be placed in this area to connect (see attached "Project Description Continued" sheet)

Project Purpose (Description of the reason or purpose of the project):
The purpose of this project is to improve the safety of this curve.

Box 6 Reason(s) for discharge into Waters of the United States (Description of why dredged and/or fill material needs to be placed in Waters of the United States):
Culvert replacments,extentions and potentially from placement of RED.

Proposed discharge of dredge and/or fill material. Indicate total surface area in **acres** and **linear feet** (where appropriate) of the proposed impacts to Waters of the United States, indicate water body type (tidal wetland, non-tidal wetland, riparian wetland, ephemeral stream/river, intermittent stream/river, perennial stream/river, pond/lake, vegetated shallows, bay/harbor, lagoon, ocean, etc.), and identify the impact(s) as permanent and/or temporary for each requested Nationwide Permit[1]:

[1] Enter the intended permit number(s). See Nationwide Permit regulations for permit numbers and qualification information: http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/NationwidePermits.aspx

Water Body Type	Requested NWP Number: 18				Requested NWP Number:				Requested NWP Number:			
	Permanent		Temporary		Permanent		Temporary		Permanent		Temporary	
	Area	Length	Area	Length	Area	Length	Area	Length	Area	Length	Area	Length
ephemeral stream	0.01	45'										
ephemeral sream	0.001	25'										
Total:	0.01	70'										

Total volume (in cubic yards) and type(s) of material proposed to be dredged from or discharged into Waters of the United States:

Material Type	Total Volume Dredged	Total Volume Discharged
Rock Slope Protection (RSP)		22 CY (RED)
Clean spawning gravel		
River rock		
Soil/Dirt/Silt/Sand/Mud		
Concrete		
Structure		
Stumps/Root wads		
Other: Culvert Extension	2.08 CY	
Total:	2.08 CY	22 CY (RED)

Activity requires a written waiver to exceed specified limits of the Nationwide Permit? ☐ Yes ☒ No
If yes, provide Nationwide Permit number and name, limit to be exceeded, and rationale for each requested waiver:

Activity will result in the loss of greater than ½-acre of Waters of the United States? ☐ Yes ☒ No
If yes, provide an electronic copy (compact disc) or multiple hard copies (7) of the complete PCN for appropriate Federal and State Pre-discharge Notification (See General Condition #31, Pre-construction Notification, Agency Coordination, Section 2 and 4):

Describe direct and indirect effects caused by the activity and how the activity has been designed (or modified) to have minimal adverse effects on the aquatic environment (See General Condition #31, Pre-construction Notification, District Engineer's Decision, Section 1): The project would be constructed during the dry season, and work within Army Corps jurisdiction is being done in two ephemeral streambeds. Direct effects would be due to culvert extensions and REDs being placed in channels. Impacts to aquatic resources in either of the two ephemeral channels due to construction activities are not anticipated due to work windows (dry season). Indirect effects could be due to any excavation/grading necessary for placement of extensions or REDs. Work will be conducted from the roadway as much as possible. See Attachment C for project area photos, and Attachment D for drainage detail maps.

Potential cumulative impacts of proposed activity(if any): N/A

Required drawings and figures (see each U.S. Army Corps of Engineers District's Minimum Standards Guidance):
Vicinity map: ☒ Attached (or mail copy separately if applying electronically)
To-scale Plan view drawing(s): ☒ Attached (or mail copy separately if applying electronically)
To-scale elevation and/or Cross Section drawing(s): ☒ Attached (or mail copy separately if applying electronically)
Numbered and dated pre-project color photographs: ☒ Attached (or mail copy separately if applying electronically)
Sketch drawing(s) or map(s): ☐ Attached (or mail copy separately if applying electronically)

Has a wetlands/waters of the U.S. delineation been completed?
☐ Yes, Attached[2] (or mail copy separately if applying electronically) ☒ No
If a delineation has been completed, has it been verified in writing by the Corps?
☐ Yes, Date of preliminary or approved jurisdictional determination (mm/dd/yyyy): Corps file number: ☐ No
[2]If available, provide ESRI shapefiles (NAD83) for delineated waters

For proposed discharges of dredged material resulting from navigation dredging into inland or near-shore waters of the U.S. (including beach nourishment), please attach[3] a proposed Sampling and Analysis Plan (SAP) prepared according to Inland Testing Manual (ITM) guidelines (including Tier I information, if available), or if disposed offshore, a proposed SAP prepared according to the Ocean Disposal Manual.
[3]Or mail copy separately if applying electronically

Is any portion of the work already complete? ☐ YES ☒ NO
If yes, describe the work:

Box 7 Authority:
Is Section 10 of the Rivers and Harbors Act applicable?: ☐ YES ☒ NO
Is Section 404 of the Clean Water Act applicable?: ☒ YES ☐ NO

Is the project located on U.S. Army Corps of Engineers property or easement?: ☐ YES ☒ NO
If yes, has Section 408 process been initiated?: ☐ YES ☐ NO
Would the project affect a U.S. Army Corps of Engineers structure?: ☐ YES ☐ NO
If yes, has Section 408 process been initiated?: ☐ YES ☐ NO

Is the project located on other Federal Lands (USFS, BLM, etc.)?: ☐ YES ☒ NO

Is the project located on Tribal Lands?: ☐ YES ☒ NO

Box 8 Is the discharge of fill or dredged material for which Section 10/404 authorization is sought part of a larger plan of development?: ☐ YES ☒ NO

If discharge of fill or dredged material is part of development, name and proposed schedule for that larger development (start-up, duration, and completion dates):

Location of larger development (if discharge of fill or dredged material is part of a plan of development, a map of suitable quality and detail of the entire project site should be included):

Box 9 Measures taken to avoid and minimize impacts to waters of the United States:
Work windows, erosion control best management practices, stormwater best management practices.

Box 10 Proposed Compensatory Mitigation related to fill/excavation and dredge activities. Indicate in **acres** and **linear feet** (where appropriate) the total quantity of Waters of the United States proposed to be created, restored, enhanced and/or preserved for purposes of providing compensatory mitigation. Indicate water body type (tidal wetland, non-tidal wetland, riparian wetland, ephemeral stream/river, intermittent stream/river, perennial stream/river, pond/lake, vegetated shallows, bay/harbor, lagoon, ocean, etc.) or non-jurisdictional (uplands[1]). Indicate mitigation type (permittee-responsible on-site/off-site, mitigation bank, or in-lieu fee program). If the mitigation is purchase of credits from a mitigation bank, indicate the bank to be used, if known:

[1] For uplands, please indicate if designed as an upland buffer.

Site Number	Water Body Type	Created		Restored		Enhanced		Preserved		Mitigation Type
		Area	Length	Area	Length	Area	Length	Area	Length	
#1-18" pipe (outlet)	ephemeral			*approx 0.003 ac	*approx 40'					permittee resp
#2-90" pipe (inlet)	ephemeral			*approx 0.03 ac	*approx 40'					permittee resp
#3-90" pipe (outlet)	uplands/non-jurisdictional			*approx 0.004 ac	*approx 50'					permittee resp
#4 (shrubs replacing trees)	uplands/non-jurisdictional			approx. 0.60 ac	N/A					permittee resp
Total:				jurisdictional = approx. 0.033 ac	jurisdictional = approx 80'					

If no mitigation is proposed, provide detailed explanation of why no mitigation would be necessary:

If permittee-responsible mitigation is proposed, provide justification for not utilizing a Corps-approved mitigation bank or in-lieu fee program:
A mitigation bank is not warranted for impacts to this project due to replanting of lower-growing native plants/shrubs in lieu of trees in order to alleviate sight distance/safety issue around curve.
* Areas within RED placement will be replanted with native vegetation to the extent possible.

Has a draft/conceptual mitigation plan been prepared in accordance with the April 10, 2008, Final Mitigation Rule[2] and District Guidelines?

[2] http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/mitig_info.aspx
[3] **Sacramento and San Francisco Districts**-http://www.spk.usace.army.mil/organizations/cespk-co/regulatory/pdf/Mitigation_Monitoring_Guidelines.pdf
[4] **Los Angeles District**-http://www.spl.usace.army.mil/regulatory/mmg_2004.pdf
[5] **Albuquerque District**-http://www.spa.usace.army.mil/reg/mitigation/SPA%20Final%20Mitigation%20Guidelines_OLD.pdf

☒ Yes, Attached (or mail copy separately if applying electronically) ☐ No

If no, a mitigation plan must be prepared and submitted, if applicable.

Mitigation site(s) Latitude & Longitude (D/M/S, DD, or UTM with Zone): same as project site	USGS Quadrangle map name(s): same as project site

Assessor Parcel Number(s): N/A	Section(s), Township(s), Range(s): same as project site
Other location descriptions, if known: N/A	
Directions to the mitigation location(s): N/A	

Box 11 Threatened or Endangered Species

Please list any federally-listed (or proposed) threatened or endangered species or critical habitat (or proposed critical habitat) within the project area (include scientific names (e.g., Genus species), if known):

a. *Delta smelt (Hypomesus transpacificus) b. *CV Steelhead (Oncorhynchus mykiss)

c. *CV spring- and winter-run chinook (Oncorhynchus tshawytscha)

d. *Valley elderberry longhorn beetle (Desmocerus californicus dimorphus)

e. *CA red-legged frog (Rana draytonii) f. *none of these species will be impacted by this project as they are not present within project limits.

Have surveys, using U.S. Fish and Wildlife Service/NOAA Fisheries protocols, been conducted?

☐ Yes, Report attached (or mail copy separately if applying electronically) ☒ No

If a federally-listed species would be impacted, please provide a description of the impactand a biological evaluation, if available.

☐ Yes, Report attached (or mail copy separately if applying electronically) ☐ Not attached

Has Section 7 consultation been initiated by another federal agency?

☐ Yes, Initiation letter attached (or mail copy separately if applying electronically) ☒ No

Has Section 10 consultation been initiated for the proposed project?

☐ Yes, Initiation letter attached (or mail copy separately if applying electronically) ☒ No

Has the USFWS/NOAA Fisheries issued a Biological Opinion?

☐ Yes, Attached (or mail copy separately if applying electronically) ☒ No

If yes, list date Opinion was issued (m/d/yyyy):

Box 12 Historic properties and cultural resources:

Are any cultural resources of any type known to exist on-site? ☐ Yes ☒ No

Please list any known historic properties listed, or eligible for listing, on the National Register of Historic Places:

a. N/A b.

c. d.

e. f.

Has a cultural resource records search been conducted?

☒ Yes, Report attached (or mail copy separately if applying electronically) ☐ No

Has a cultural resource pedestrian survey been conducted for the site?

☒ Yes, Report attached (or mail copy separately if applying electronically) ☐ No

Has another federal agency been designated the lead federal agency for Section 106 consultation?

☐ Yes, Designation letter/email attached (or mail copy separately if applying electronically) ☒ No

Has Section 106 consultation been initiated by another federal agency?

☐ Yes, Initiation letter attached (or mail copy separately if applying electronically) ☒ No

Has a Section 106 MOA or PA been signed by another federal agency and the SHPO?

☐ Yes, Attached (or mail copy separately if applying electronically) ☒ No

If yes, list date MOA or PA was signed (m/d/yyyy):

Box 13 Section 401 Water Quality Certification:
Applying for certification? ☒ Yes, Attached (or mail copy separately if applying electronically) ☐ No

Certification issued? ☐ Yes, Attached (or mail copy separately if applying electronically) ☒ No
Certification waived? ☐ Yes, Attached (or mail copy separately if applying electronically) ☒ No
Certification denied? ☐ Yes, Attached (or mail copy separately if applying electronically) ☒ No

Exempted activity? ☐ Yes ☒ No
Agency concurrence? ☐ Yes, Attached ☒ No
If exempt, state why:

Box 14 Coastal Zone Management Act:
Is the project located within the Coastal Zone? ☐ Yes ☒ No

If yes, applying for a coastal commission-approved Coastal Development Permit?
☐ Yes, Attached (or mail copy separately if applying electronically) ☐ No

If no, applying for separate CZMA-consistency certification?
☐ Yes, Attached (or mail copy separately if applying electronically) ☒ No

Permit/Consistency issued? ☐ Yes, Attached (or mail copy separately if applying electronically) ☒ No

Exempt? ☐ Yes ☒ No
Agency concurrence? ☐ Yes, Attached ☒ No
If exempt, state why:

Box 15 List of other certifications or approvals/denials received from other federal, state, or local agencies for work described in this application:

Agency	Type of Approval[4]	Identification Number	Date Applied	Date Approved	Date Denied
CA Dept of Fish and GAme	1602 Lake and Streambed Alteration Agreement	Do not have yet	7/12	N/A	N/A
Central Valley Water Quality Control Board	401 Water Quality Certification	Do not have yet	7/12	N/A	N/A

[4] Would include but is not restricted to zoning, building, and flood plain permits

Nationwide Permit General Conditions (GC) checklist:

(http://www.gpo.gov/fdsys/pkg/FR-2012-02-21/pdf/2012-3687.pdf)

Check	General Condition	Rationale for compliance with General Condition
☒	1. Navigation	No navigable waterways within project limits
☒	2. Aquatic Life Movements	No disruption to aquatic life cycles due to work windows
☒	3. Spawning Areas	No spawning areas within project area
☒	4. Migratory Bird Breeding Areas	No migratory bird breeding areas within project area
☒	5. Shellfish Beds	No shellfish beds within project area
☒	6. Suitable Material	Construction materials will be free of toxic pollutants
☒	7. Water Supply Intakes	No public water supply intake within project area
☒	8. Adverse Effects from Impoundments	No impoundments will be created due to project
☒	9. Management of Water Flows	Project will not restrict or impede normal or high flows
☒	10. Fills Within 100-Year Floodplains	The project area is not within a 100-yr floodplain
☒	11. Equipment	No heavy equipment will be working in wetlands or mudflats
☒	12. Soil Erosion and Sediment Controls	Work will be performed during the dry season. Erosion BMPs will be utilized
☒	13. Removal of Temporary Fills	Temporary fills will be removed from project area and impacted jurisdictional areas will be replanted w/ native vegetation
☒	14. Proper Maintenance	Structures will be properly maintained
☒	15. Single and Complete Project	This is a single and complete project
☒	16. Wild and Scenic Rivers	There are no wild and scenic rivers in the project area
☒	17. Tribal Rights	No activity will will impair any reserved tribal rights
☒	18. Endangered Species	See Box 11 above.
☒	19. Migratory Bird and Bald and Golden Eagle Permits	No bald or golden eagles have been observed within the project area. The project is planned to be constructed outside of nesting season.
☒	20. Historic Properties	See Box 12 above.
☒	21. Discovery of Previously Unknown Remains and Artifacts	No remains and/or artifacts were found within project limits. If any are discovered during construction, the District Engineer will be notified immeidiately
☒	22. Designated Critical Resource Waters	There are no designated critical resource waters associated with this project
☒	23. Mitigation	See Box 10 above.
☒	24. Safety of Impoundment Structures	There are no impoundment structures associated with this project
☒	25. Water Quality	See Box 13 above.
☒	26. Coastal Zone Management	See Box 14 above.
☒	27. Regional and Case-by-Case Conditions	The project complies with Regional Conditions
☒	28. Use of Multiple Nationwide Permits	Only 1 NWP is being applied for
☒	29. Transfer of Nationwide Permit Verifications	Caltrans is not proposing to sell this property or transfer the NWP to another party
☒	30. Compliance Certification	A Compliance Certificate will be submitted to the Corps upon completion of this project
☒	31. Pre-Construction Notification	This project qualifies as a non-reporting NWP 18. No pre-construction notification is necessary.

State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND GAME
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670-4599
916-358-2900
www.dfg.ca.gov

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

9/19/12
Date

Clark Peri
California Department of Transportation
2379 Gateway Oaks Drive, Suite 150
Sacramento, CA 95833

Subject: Final Lake or Streambed Alteration Agreement
Notification No. 1600-2012-0133 -R2
El Dorado 49 Curve Correction

Dear Mr. Peri:

Enclosed is the final Streambed Alteration Agreement (Agreement) for the El Dorado 49 Curve Correction (Project). Before the Department of Fish and Game (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 the same date it signed the Agreement. The NOD was based on information contained in the Mitigated Negative Declaration that 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 Tim Nosal at (916) 358-2853 or tnosal@dfg.ca.gov.

Sincerely,

Jeff Drongesen

for Tina Bartlett
Acting Regional Manager

ec: Tim Nosal, Environmental Scientist
tnosal@dfg.ca.gov

CALIFORNIA DEPARTMENT OF FISH AND GAME
NORTH CENTRAL REGION
1701 NIMBUS ROAD, SUITE A
RANCHO CORDOVA, CA 95670

STREAMBED ALTERATION AGREEMENT
NOTIFICATION NO. 1600-2012-0133-R2
UNNAMED DRAINAGES TRIBUTARY TO THE NORTH FORK COSUMNES RIVER

California Department of Transportation
EL DORADO 49 CURVE CORRECTION

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Game (DFG) and California Department of Transportation (Caltrans) (Permittee) as represented by Clark Peri.

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified DFG on July 20, 2012 that Permittee intends to complete the project described herein.

WHEREAS, pursuant to FGC section 1603, DFG 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 project is located along State Route 49 south of Placerville, between Post Miles 3.8 and 3.9, at two unnamed drainages tributary to the North Fork Cosumnes River, in the County of El Dorado, State of California; Latitude 38.6010, Longitude -120.8533 or Section27, Township 9N, Range 10E, U.S. Geological Survey (USGS) map Fiddletown, Mount Diablo base and meridian (Attachment A: Maps).

PROJECT DESCRIPTION

The project is limited to modification of the existing drainage systems necessary to eliminate the compound curve and widen the roadway. This will involve extending a 90-inch (in) structural steel pipe (SSP) culvert located immediately south of Ramales Lane

at the inlet and outlet, and constructing a rock-lined outfall channel in upland, replacing a 12-in corrugated metal pipe (CMP) culvert located at the north end of the project area with an 18-in alternative pipe culvert (APC) and a new drainage inlet, replacing/realigning a 24-in CMP culvert that drains a roadside ditch, and adding a new drainage inlet immediately north of Ramales Lane, which is a private road that makes a "T" intersection on the outside of the curve.

A detailed project description is provided in the notification materials submitted to DFG. The notification, together with all supporting documents submitted with the notification;

- "Initial Study with Mitigated Negative Declaration. State Route 49 Curve Improvement, El Dorado County, California. District 3 – ED – 49, PM3.76-3.92, EA 03-4 E 590. dated November 2011;
- "Conceptual Planting Plan, 03-ED-49 3.8/3.9", May 21, 2012;
- "Drainage Report for State Route 49 Modify Superelevation and Widen Shoulders, EA-4E5901", dated May 30, 2012;
- "Curve Correction Project (EA 4E5901) El Dorado County, State Route 49, PM 3.8/3.9. Other Waters of the U.S. Delineation Mapping. Prepared on July 9, 2012; and
- "Natural Environment Study (Minimal Impacts)–State Route 49, El Dorado County, California. District 3 – ED County – SR 49 – PM 3.8/3.9. EA: 4E5900. July 2012;

are hereby incorporated into this agreement to describe the location, features, avoidance measures and mitigation measures of the proposed project.

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include: nesting migratory birds, amphibians, other aquatic and terrestrial plant and wildlife species.

The adverse effects the project could have on the fish or wildlife resources identified above include: short-term increased turbidity; increased sedimentation from adjacent construction; short-term release of sediment (e.g. incidental from construction); disturbance from project activity; direct take of terrestrial species and of non-fish aquatic species; soil compaction or other disturbance; decline of vegetative diversity; disruption to nesting birds and other wildlife; and loss or impediment of terrestrial animal species travel routes due to temporary structures such as survey tape, sandbags, erosion protection materials etc.

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 DFG 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 DFG 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, DFG shall contact Permittee to resolve any conflict.

1.4 Project Site Entry. Permittee agrees that DFG personnel may enter the project site at any time to verify compliance with the Agreement.

1.5 Authorized Work. The notification, together with all supporting documents submitted with the notification, is hereby incorporated into this agreement to describe the location and features of the proposed project. The Permittee agrees that all work shall be done as described in the notification and supporting documents, incorporating all project modifications, wildlife resource protection features, mitigation measures, and provisions as described in this agreement. Where apparent conflicts exist between the notification and the provisions listed in this agreement, the Permittee shall comply with the provisions listed in this agreement. The Permittee further agrees to notify DFG of any modifications made to the project plans submitted to DFG. At the discretion of DFG, this agreement will be amended to accommodate modifications to the project plans submitted to DFG and/or new project activities.

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.

2.1 Work Period. The time period for completing the work within the stream zone shall be restricted to periods of low stream flow and dry weather and shall be confined to the period of June 15 to October 15. Construction activities shall be timed with awareness of precipitation forecasts and likely increases in stream flow. Construction activities within the stream zone shall cease until all reasonable erosion control measures, inside and outside of the stream zone, have been implemented prior to all storm events. Revegetation, restoration and erosion control work is not confined to this time period.

2.2 Work Period Extensions. At DFG's discretion, the work period may be extended based on the extent of the work remaining, on site conditions and reasonably anticipated future conditions. If the Permittee finds more time is needed to complete the authorized activity, the Permittee shall submit a written request for a work period time extension to DFG. The work period extension request shall provide the following information: 1) Describe the extent of work already completed; 2) Provide specific detail of the activities that remain to be completed within the stream zone; and 3) Detail the actual time required to complete each of the remaining activities within the stream zone. The work period extension request should consider the effects of increased stream conditions, rain delays, increased erosion control measures, limited access due to saturated soil conditions, and limited growth of erosion control grasses due to cool weather. Photographs of the work completed and the proposed work areas are helpful in assisting DFG in its evaluation. Time extensions are issued at the discretion of DFG. DFG will have ten calendar days to approve the proposed work period extension. DFG reserves the right to require additional measures designed to protect natural resources.

2.3 Stream Diversions / Dewatering. If work in the flowing portion of the stream is unavoidable, the entire stream flow shall be diverted around or through the work area during the excavation and/or construction operations. Stream flow shall be diverted using gravity flow through temporary culverts/pipes or pumped around the work site with the use of hoses. When any dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain aquatic life below the dam pursuant to Fish and Game Code section 5937. Any temporary dam or other artificial obstruction constructed shall only be built from clean materials such as sandbags, gravel bags, water dams, or clean/washed gravel which will cause little or no siltation.

2.4 Bird Nests. It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird except as otherwise provided by the Fish and Game Code. No trees that contain active nests of birds shall be disturbed until all eggs have hatched and young birds have fledged without prior consultation and approval of a DFG representative.

2.5 Vegetation Removal. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations. Except for the trees specifically identified for removal in the notification, no native trees with a trunk diameter at breast height (DBH) in excess of four (4) inches shall be removed or damaged without prior consultation and approval of a DFG representative. Using hand tools (clippers, chain saw, etc.), trees may be trimmed to the extent necessary to gain access to the work sites. All cleared material/vegetation shall be removed out of the riparian/stream zone.

2.6 Sediment Control. Precautions to minimize turbidity/siltation shall be taken into account during project planning and implementation. This may require the placement of silt fencing, coir logs, coir rolls, straw bale dikes, or other siltation barriers so that silt and/or other deleterious materials are not allowed to pass to downstream reaches. Monofilament mesh, jute netting and non-biodegradable synthetic erosion blankets are not authorized. Passage of sediment beyond the sediment barrier(s) is prohibited. If any sediment barrier fails to retain sediment, corrective measures shall be taken. The sediment barrier(s) shall be maintained in good operating condition throughout the construction period and the following rainy season. Maintenance includes, but is not limited to, removal of accumulated silt and/or replacement of damaged siltation barriers. The Permittee is responsible for the removal of non-biodegradable silt barriers (such as plastic silt fencing) after the disturbed areas have been stabilized with erosion control vegetation (usually after the first growing season). Upon DFG determination that turbidity/siltation levels resulting from project related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation shall be halted until effective DFG approved control devices are installed or abatement procedures are initiated.

2.7 Pollution Control. Utilize Best Management Practices (BMPs) to prevent spills and leaks into water bodies. If maintenance or refueling of vehicles or equipment must occur on-site, use a designated area and/or a secondary containment, located away from drainage courses to prevent the runoff of storm water and the runoff of spills. Ensure that all vehicles and equipment are in good working order (no leaks). Place drip pans or absorbent materials under vehicles and equipment when not in use. Ensure that all construction areas have proper spill clean up materials (absorbent pads, sealed containers, booms, etc.) to contain the movement of any spilled substances. Any other substances which could be hazardous to aquatic life, resulting from project related activities, shall be prevented from contaminating the soil and/or entering the waters of the state. Any of these materials, placed within or where they may enter a stream or lake by the Applicant or any party working under contract or with the permission of the Permittee, shall be removed immediately. DFG shall be notified immediately by the Permittee of any spills and shall be consulted regarding clean-up procedures.

2.8 The Permittee shall follow all avoidance and minimization measures outlined in the Mitigated Negative Declaration and other supporting documents noted in the Project Description (page 2 of this agreement)

2.9 Soil Restoration. Soils impacted by project activity, within areas identified for vegetation re-establishment, shall be restored to suitable planting conditions under the direction of a qualified revegetation specialist. This condition applies where soil restoration efforts will not impact essential structural attributes of the soil.

3. Reporting Measures

Permittee shall meet each reporting requirement described below.

3.1 The Permittee shall notify DFG within two working days of beginning work within the stream zone of the two unnamed drainages tributary to the North Fork Cosumnes River. Notification shall be submitted as instructed in Contact Information section below. Email notification is preferred.

3.2 Upon completion of the project activities described in this agreement, the work area within the stream zone shall be digitally photographed. Photographs shall be submitted to DFG within two days of completion. Photographs and project commencement notification shall be submitted as instructed in Contact Information section below. Email submittal is preferred.

3.3 Revegetation Plan (Planting Plan). At least *thirty (30)* days prior to the commencement of the revegetation activities, the Permittee shall submit the Revegetation Plan to the DFG for review and written approval. The revegetation plan shall include a plant palette of species to be used in revegetation, success criteria, monitoring & reporting, and corrective actions to be taken when mitigation measures do not meet the proposed success criteria. The revegetation plan shall minimize loss of habitat or fish and wildlife resource values.

CONTACT INFORMATION

Any communication that Permittee or DFG 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 DFG specifies by written notice to the other.

To Permittee:

Clark Peri
California Department of Transportation
2379 Gateway Oaks Drive, Suite 150
Sacramento, CA 95833
[Phone]: (916) 274-0538
[Fax]: (916) 274-0684

[Email]: clark_peri@dot.ca.gov

To DFG:

Department of Fish and Game
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670
Attn: Lake and Streambed Alteration Program – Tim Nosal
Notification #1600-2012-0133 R2

Fax: 916-358-2912
Email: r2lsa@dfg.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 DFG'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

DFG 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 DFG 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 DFG 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 DFG to issue the notice.

ENFORCEMENT

Nothing in the Agreement precludes DFG 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 DFG'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

DFG may amend the Agreement at any time during its term if DFG 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 DFG and Permittee. To request an amendment, Permittee shall submit to DFG a completed DFG "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in DFG'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 DFG 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 DFG a completed DFG "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in DFG'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 DFG a completed DFG "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in DFG's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). DFG 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 DFG's signature, which shall be: 1) after Permittee's signature; 2) after DFG 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.dfg.ca.gov/habcon/ceqa/ceqa_changes.html.

TERM

This Agreement shall expire on December 31, 2014, 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.

EXHIBITS

Attachment A: Maps –
Location and Vicinity Map (Exhibit 1)

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 DFG in accordance with FGC section 1602.

CONCURRENCE

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

FOR CALTRANS

Clark Peri — 9-5-12

Clark Peri
Project Manager

Date

FOR DEPARTMENT OF FISH AND GAME

Tina Bartlett — 9/19/12

Tina Bartlett
Acting Regional Manager

Date

Prepared by: Tim Nosal
Environmental Scientist

M e m o r a n d u m

Flex your power!
Be energy efficient!

To: MR. STEVE WRIGHT
Senior Transportation Engineer
District 3 – Marysville
Attn: Kris Albers
Project Engineer

Date: June 14, 2012

File: 03-ED-49-3.7/3.9
03-4E5901
0300000711
Super Elev. Correction

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES – MS 5

Subject: Geotechnical Design Report for Super Elevation Correction

Introduction

The Office of Geotechnical Design North (OGDN) has prepared this Geotechnical Design Report (GDR) for the super elevation correction at 03-ED-49-3.7/3.9. The project site is located approximately 10 miles north of the town of Plymouth (Plate 1).

This report includes a review of data from the CA Geologic Survey (CGS) publications, a review of previous reports, a site reconnaissance and a geophysical refraction study. No exploratory drilling or laboratory testing was conducted for this report.

The project plan layout and cross sections provided by your office were used for providing the following recommendations.

This report is intended for use by roadway design engineers, construction personnel, bidders and contractors.

Proposed Improvements

This project will replace the existing compound curve with a single radius curve by widening the travelled lanes and shoulders to improve sight distance and driveability/safety. These improvements are to include extending the existing cut slopes back and the placement of new compacted fills and culverts.

Pertinent References

The following documents were used in the preparation of this report:

1) District Preliminary Geotechnical Report, 03-4E5901, Dated February 3, 2009.
2) Geologic Map of the Sacramento Quadrangle, C.D.M.G., 1981.
3) District Project Plans, Layout sheet L-1, and Typical Cross Sections, Sheet X-1, undated.
   -"A" Line stationing 11+00 to 19+09
4) Seismic Refraction Survey, Dated May 24, 2012

Climate and Drainage

The District Preliminary Geotechnical Report describes the average precipitation in the region as 39 inches or more from 1971 to 2000, and the average temperature from 42º to 72 º F. The project package prepared by District 03 contains a preliminary drainage report dated April 24, 2009 which accurately describes the hydrology and surface runoff characteristics of the project.

Site Geology

The project site is underlain by metamorphosed volcanic rocks termed the Logtown Ridge formation (Plate 2) and colluvium. The rock at this location is hard, intensely fractured/jointed and intensely weathered near the surface and slightly fractured and fresh in some areas at depth. The colluvium is loose clayey sand which contains metamorphic rock clasts and forms a relatively thin veneer across the site.

Exploration

The Office of Geotechnical Support, Geophysics and Geology Branch performed a seismic survey at the project site in May, 2012. Two seismic refraction lines were completed below and above the existing slope in the area of the proposed cut. The survey was done to estimate the distribution and depth of potentially non-rippable rock in the area of the proposed cut slope from STA 11+00 to 14+50. A copy of the seismic refraction report is attached.

CONCLUSIONS AND RECOMMENDATIONS

General

Based on the results of our findings, OGDN concludes that the site is suitable for the proposed super elevation changes and improvements provided the recommendations presented in this report are incorporated into the design and construction of the project.

Cut Slope Rippability

Our site reconnaissance and geologic review indicates that the project site is underlain by metamorphosed volcanic rocks and minor colluvium.

The attached seismic refraction report shows that non-rippable rock with seismic velocities up to nearly 18000 feet/sec. are present in the area of the proposed cut slope. Based on the site reconnaissance, this non-rippable rock will be encountered within the excavation limits. The remainder of the rock in the cut slope area is considered to be easily rippable with excavation equipment ordinarily used for standard roadway excavation. The table below classifies the volume-percent of material that should be considered non-rippable (rock excavation) versus that which is easily rippable (roadway excavation).

Table 1: Cut Slope Rippability

Stationing	Percent by volume of non-rippable rock	Percent by volume of easily rippable rock
11+00 to 11+45	10	90
11+45 to 12+00	20	80
12+00 to 12+70	10	90
12+70 to 13+10	20	80
13+10 to 14+50	0	100

In the areas that are classified as non-rippable, blasting will not be required. Conventional rock excavation equipment such as hoe rams and rock splitters will be sufficient to perform this work.

It is expected that the spoils generated from the material classified as easily rippable will contain boulders estimated to be up to 5 feet in largest dimension.

Landsliding

No areas of large global instabilities were observed during our site reconnaissance and none are expected to be created by construction of the project. One small, shallow area of mass wasting was observed at the northwest corner of Route 49 and Mica Road. This area is between STA 15+60 to 16+00 and extends past the existing right-of-way limit. It is estimated to be 4 feet deep. It is recommended that the portion of this feature that is within the right-of-way be removed prior to any fill placement over the top of it. The limits are shown pictorially on Plate 3.

Groundwater

Groundwater will not be a factor during construction. A small spring was observed along the roadway near the mass wasting feature at STA 16+00 during the site visit in May, 2012.

Rockfall

There is no rockfall presently occurring at the site is none is expected to occur after construction.

Cut slopes

The maximum cut slope height is recommended to be 30 feet when excavated at a gradient of 1:1 (horizontal:vertical) and exceeds the maximum cut slope height in the project plans. The cut slopes are not expected to expose any geologic instabilities.

Fill Slopes

Fill slopes may be constructed at a maximum gradient of 2:1. The toes of fill slopes placed on existing slopes greater than a 4:1 gradient should be adequately keyed into competent material.

Project Information

Standard Special Provision S5-280, "Project Information", discloses to bidders and contractors a list of pertinent information available for their inspection prior to bid opening. The following is an excerpt from SSP S5-280 disclosing information originating from Geotechnical Services. Items listed to be included in the Information Handout will be provided in Acrobat (.pdf) format to the addressee(s) of this report via electronic mail.

Data and information attached with the project plans are:

None.

Data and information included in the Information Handout provided to the bidders and contractors are:

Results of Seismic Refraction Survey, Dated May 24, 2012.

Data and information available for inspection at the District Office:

None.

Data and information available for inspection at the Transportation Laboratory are:

None.

Construction Considerations

Blasting for cut slopes should not be anticipated. Rock excavation with hoe rams, splitters or expanders is expected to be feasible.

Rock clasts/boulders up to five feet in diameter should be anticipated in the roadway excavation portions of cut slopes.

Coarse materials placed in new fill shall be well distributed within the fill.

All fills slopes should conform to the Standard Specification, Section 19.

Cut slopes that are near 80% of completion should be observed by an engineering geologist from this Office.

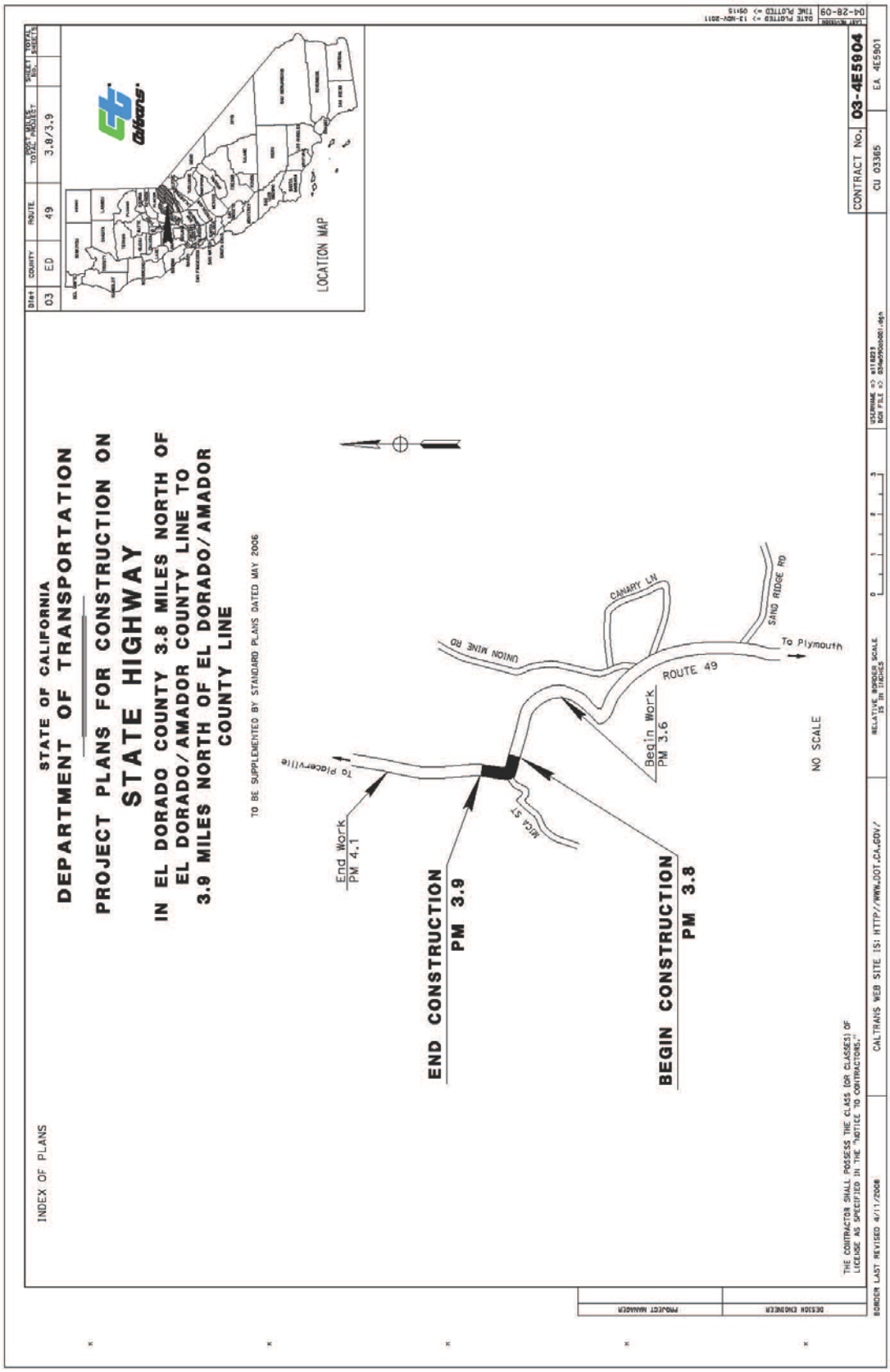
If you have any questions or comments, please call Christopher Koepke at (916) 227-1040 or John (Qiang) Huang at (916) 227-1037.

CHRISTOPHER KOEPKE, C.E.G. 2207
Engineering Geologist
Office of Geotechnical Design North, Branch B

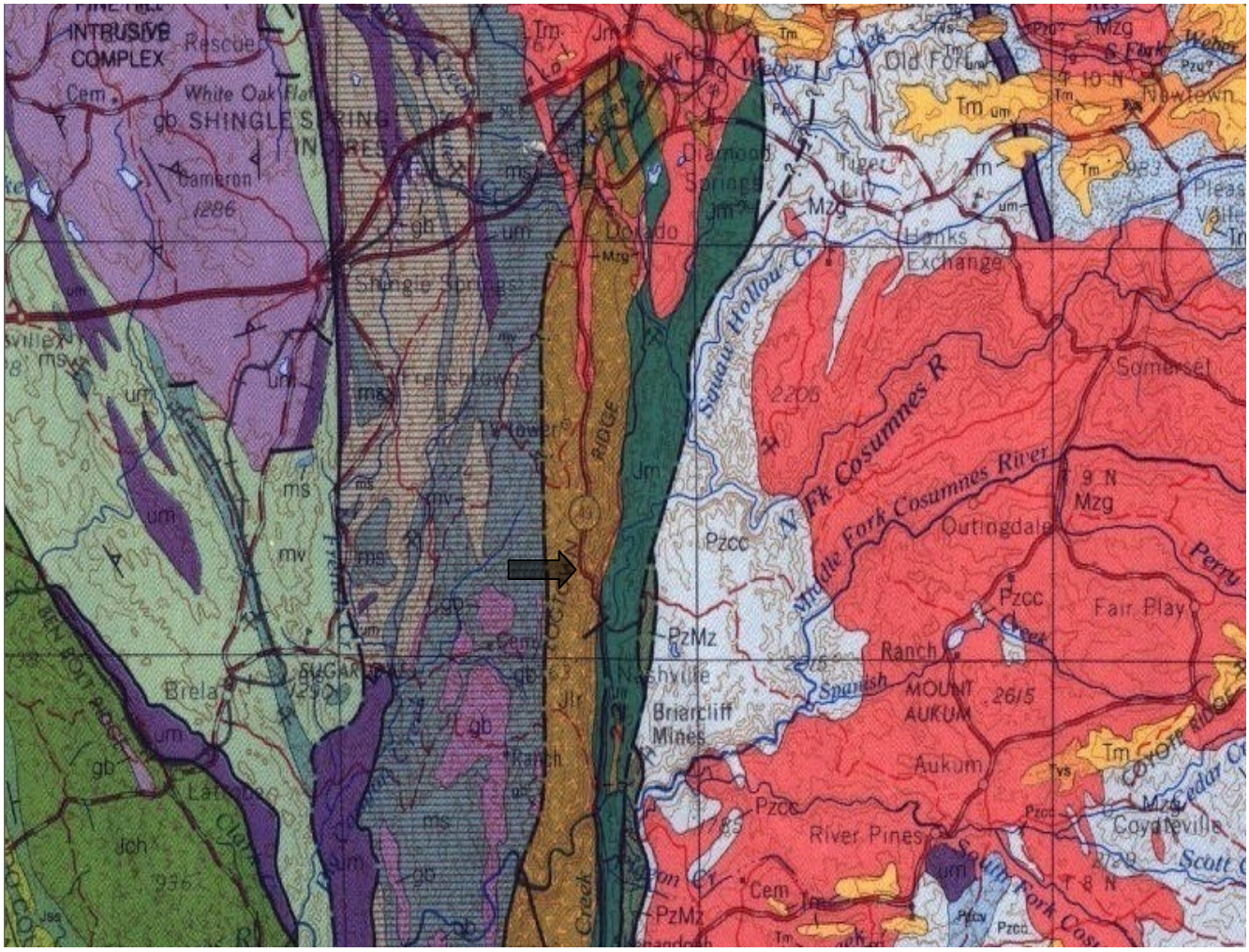
Attachments
Plate No. 1. Project Location Map
Plate No. 2: Geologic Map
Plate No. 3: Slide limits
Seismic Refraction Study

cc (ecopy):
Clark Peri (D03 Project Manager)
Shira Rajendra (GS, Corporate Unit)
Dan Ferchand (D03 District Materials Engineer)
District 03 R.E. Pending File
D03 Office Engineer

Plate No. 1 - Project Location Map



"Caltrans improves mobility across California"



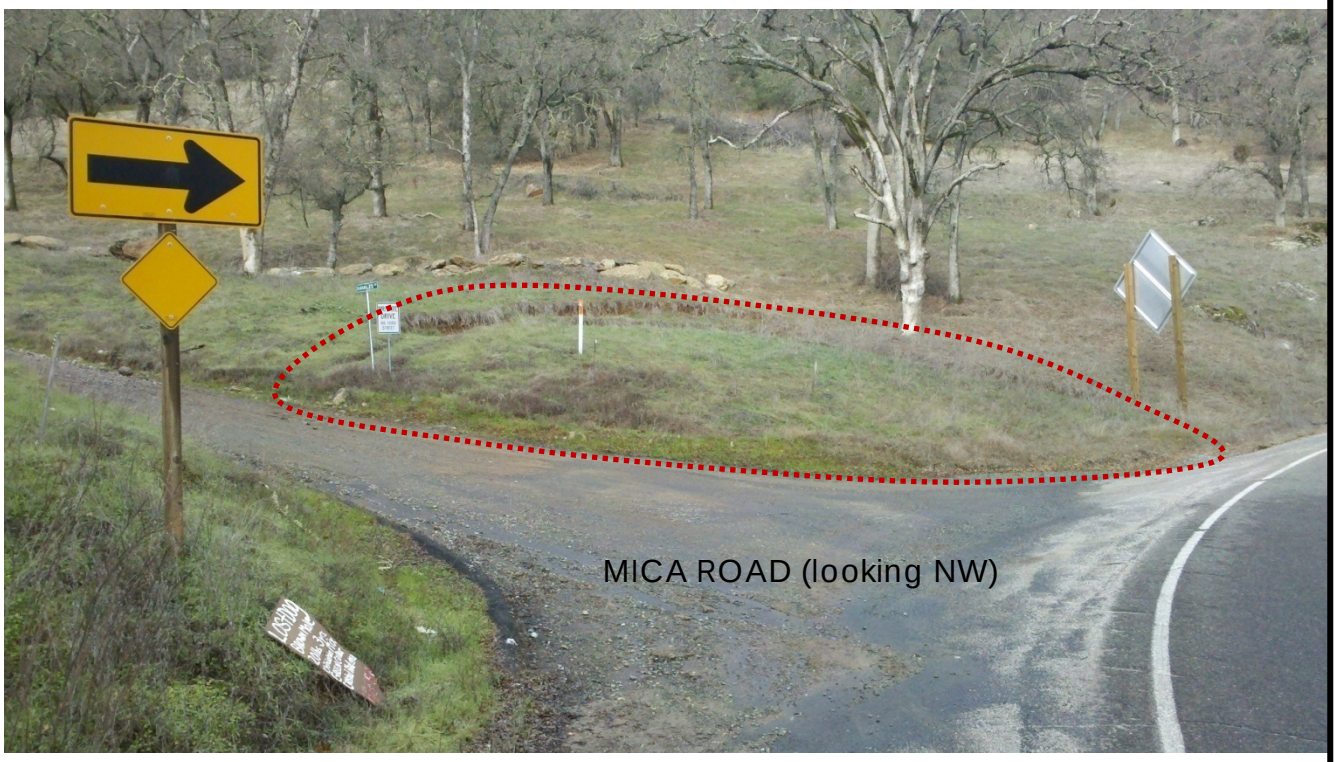
N

NO SCALE

Source: Geologic Map of the Sacramento Quadrangle, C.D.M.G., 1981.
Explanation: Jlr – Logtown Ridge Formation, Metavolcanic rocks.
= Site location.

CALTRANS
Division of Engineering Services
Geotechnical Services
Geotechnical Design - North

EA: 03-4E5901	**GEOLOGIC MAP**
Date: June, 2012	
03-PLA-49-PM 3.7/3.9 **Super Elevation Correction** **GEOTECHNICAL DESIGN REPORT**	Plate No. 2



CALTRANS
Division of Engineering Services
Geotechnical Services
Geotechnical Design - North

= Approx. limits

EA: 03-4E5901

Date: June, 2012

Mass Wasting/Minor Slide Limits at 16+00

03-PLA-49-PM 3.7/3.9
Super Elevation Correction
GEOTECHNICAL DESIGN REPORT

Plate No. 3

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

M e m o r a n d u m

Flex your power!
Be energy efficient!

To: **Mark Hagy**
Senior M&R Engineer
Geotechnical Design North
Division of Engineering Services

Date: May 24, 2012

File: 03-ED_49_3.7_3.9
Project: 03-0000-0711

Attention: Chris Koepke

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES-MS#5

Subject: Results of Seismic Refraction Survey for Route 49 Curve Correction

Introduction

This memo documents the results of a refraction seismic survey to assist in the design of roadway improvements for Highway 49 between PM 3.7 to 3.9. The seismic refraction method was employed to determine the engineering characteristics of the material comprising the existing embankment above the roadway surface. Two seismic refraction lines were employed within a limited site. Figure 1 shows the locations of the seismic lines. Elevations used in this report were approximated from GPS measurements and should be verified and corrected where needed for final design. A temporary benchmark (TBM) was established at the site for future reference. The TBM was set on top of the existing culvert at PM 3.84, latitude 38°36.06' N, longitude -120° 51.207'W

Results and Discussion

The results of our findings are summarized in table on the following page.

Seismic lines were positioned to image the existing cut as requested by the project geologist. Figure 1 is an aerial photo showing the locations of the two seismic lines. Line 1 is above the roadway at the edge of the right-of-way (see plate 2). The line traversed a moderate slope comprised of soil, and rocky float with an outcrop of rock about 80 feet down the seismic line. . The model indicates about 6 to 18 feet of rocky colluvium (V1) lying above metamorphic rock (V2) of unknown thickness.

Seismic Line 2 was directly adjacent to the roadway within a roadside ditch. Plate 3 shows the profile for this seismic line. The model indicates a very thin veneer of colluvium, (V1) lying over Metamorphic rock, (V2) of unknown thickness. The bedrock is exposed at road grade at the beginning of seismic line 2.

Line	Layer	Average Thickness (ft.)	Velocity Range (ft/s)	Line Length(ft)	Inferred Material	Rippability
1	1	3-18	1558	321	Colluvium and Intensely Weathered Rock	ER
1	2	N/A	12411	321	Metamorphic Bedrock	NR
2	1	.5-5	1863	321	Intensely Weathered Rock	ER
2	2	N/A	17739	321	Metamorphic Bedrock	NR

[1] ER = Easily Ripped, MD = Moderately Difficult, DR = Difficult Ripping, NR = Not Rippable,

Ripping ability is based on unpublished Caltrans data for the Caterpillar D9 series bulldozer with a single-tooth ripper. These values are as follows:

Velocity (ft/s)	**Rippability**
<3440	Easily Ripped
3440-4920	Moderately Difficult
4920-6560	Difficult Ripping
>6560	Not Rippable

Different excavation equipment may experience different results. Penetrating efficacy of the ripping tooth is often more important in predicting ripping success than seismic velocity alone. Undetected blocks or lenses of high-velocity material may also be present within rippable zones, requiring blasting or other means of mechanical breakage for excavation.

Data Acquisition and Processing

Seismic refraction data were recorded using an EG&G Smartseis 24-channel seismograph with 14 MHz geophones. The profiles varied in length. The energy source employed was a hammer and striker plate or a downhole seismic source using 8-gauge, 500-grain black powder cartridges. Refraction data from each shot were stored in the seismograph's memory. Both profile geometry and refraction data were backed-up to paper and floppy disk upon completion of the survey.

Profiles in this report are presented in terms of velocity units. A velocity unit is a three-dimensional unit, which due to its elastic properties and density, propagates seismic waves at a characteristic velocity or within a characteristic velocity range. Velocities denoted in this report and in the seismic refraction sections are expressed in feet per second. At least one velocity is present within a geological rock unit. In addition, each zone of weathering, or fracturing within that geological unit can constitute its own velocity unit. Conversely, when two rock units such as water saturated gravel and moderately weathered rock propagate seismic waves at the same velocity and are adjacent to each other, both units would be part of the same velocity unit. Lastly, discontinuous velocities might result from variation in the degree of alteration in the form of physical and chemical weathering and should be considered in the interpretation of the data.

Thank you for the opportunity to work on this project. If you have any questions or need additional assistance, please contact me at (916) 227-1307 or Mr. Bill Owen at (916) 227-0227.

Report by:

Dennison Leeds
Engineering Geologist
Geophysics and Geology Branch

Reviewed By:

William Owen, CEG 1735
Chief, Geophysics and Geology Branch

c: Project File.

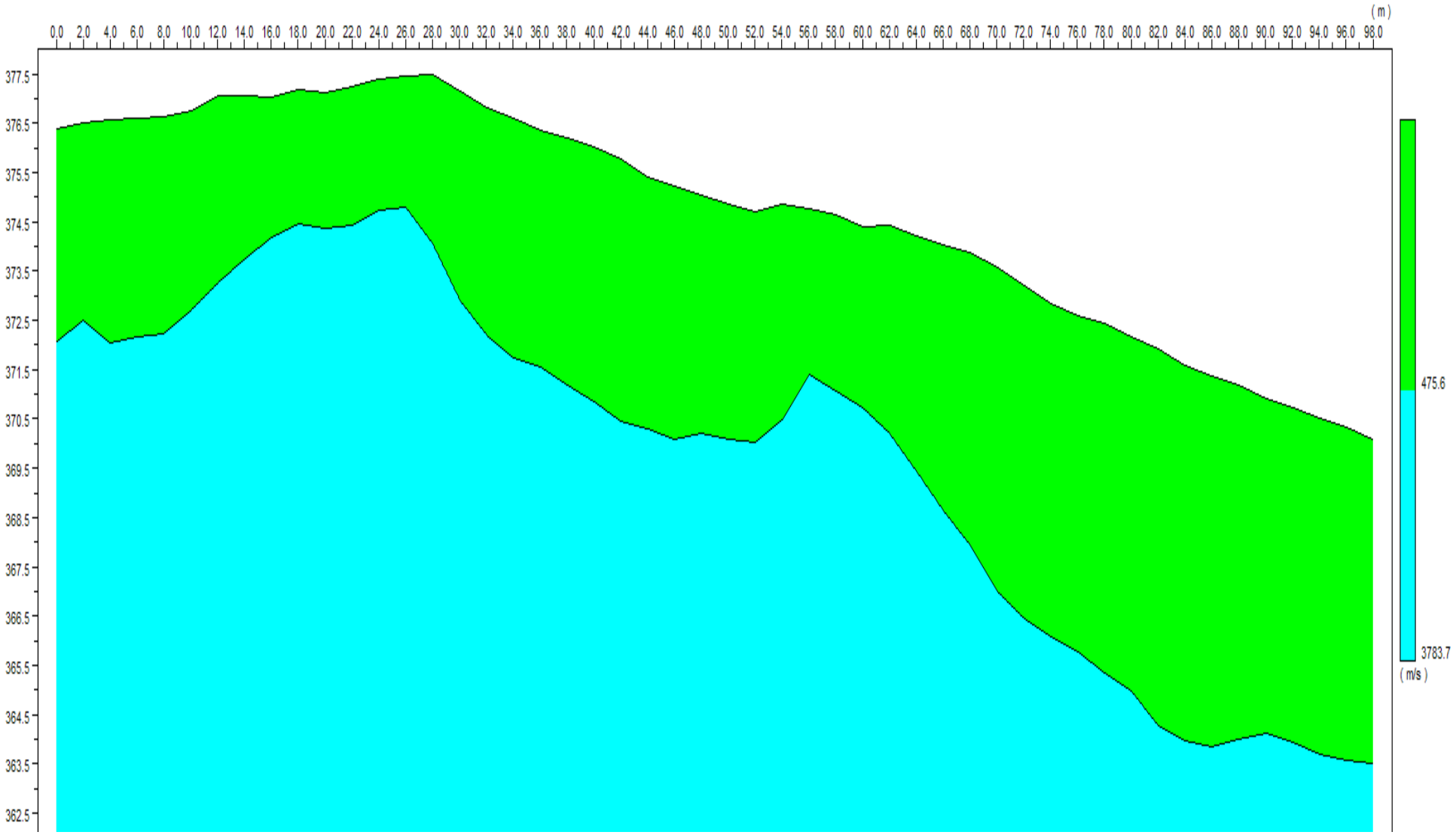
DL/WO

03_ED_49_3.7-3.9_2012_SEI.doc

Caltrans	Division of Engineering Services Geotechnical Services Geophysics and Geology Branch	EA 03-4E5901	Location Map	Plate No. 1
		ID 03-0000-0711	03-ED-49 PM 3.7-3.9	

E W

ED 49 Line 1



Caltrans	**Division of Engineering Services** **Geotechnical Services** **Geophysics and Geology Branch**	**EA 03-4E5890**	Color Density Plot with Geologic Interpretation	**Plate No. 2**
		ID 03-00000711	03 ED-49 PM 3.86	

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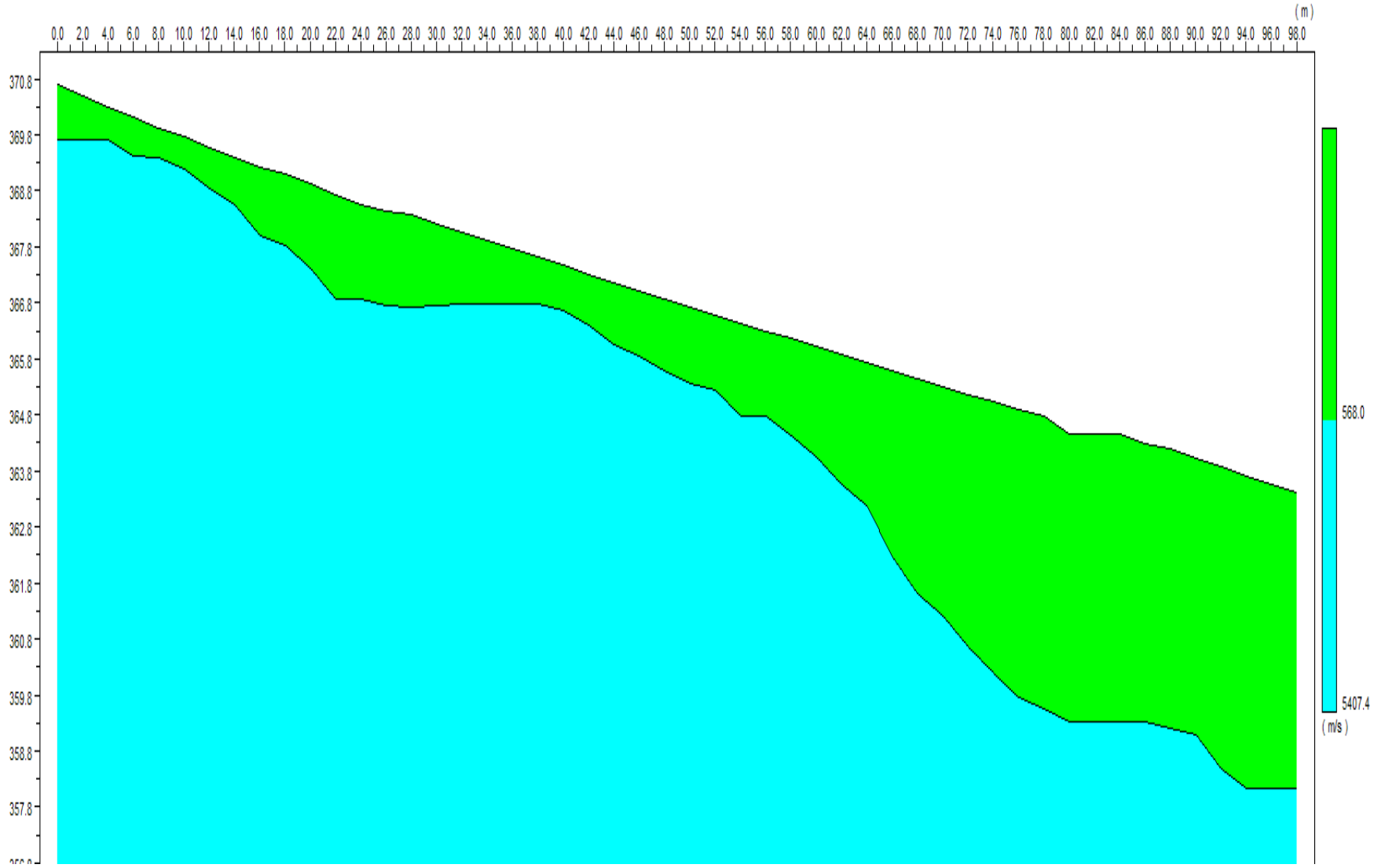

Caltrans	**Division of Engineering Services** **Geotechnical Services** **Geophysics and Geology Branch**	**EA 03-4E5890**	Color Density Plot with Geologic Interpretation	**Plate No. 3**
		ID 03-00000711	03 ED-49 PM 3.86	