FOR CONTRACT NO. 08-449104

INFORMATIONAL HANDOUT

WATER QUALITY

COLORADO RIVER BASIN
REGIONAL WATER QUALITY CONTROL BOARD
401 PERMIT

PERMITS

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
INLAND DESERTS REGION
1602 PERMIT

UNITED STATES ARMY CORPS OF ENGINEERS
404 PERMIT

STRUCTURES ITEMS

FINAL HYDRAULIC REPORT

FOUNDATION REPORT

FOUNDATION REVIEW

ROUTE: Riv-111-1.5

May 14, 2013

Mr. Scott Quinnell
California Department of Transportation
464 West 4th Street
San Bernardino, California 92401

RE: ORDER FOR TECHNICALLY-CONDITIONED CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION FOR DISCHARGE OF DREDGED AND/OR FILL MATERIALS

PROJECT: Caltrans - SR 111 Reconstruction of Salt Creek Bridge, WDID No. 7A333131001

APPLICANT: California Department of Transportation

ACTION:

1. ☐ Order for Standard Certification
2. ☒ Order for Technically-Conditioned Certification
3. ☐ Order for Denial of Certification

STANDARD CONDITIONS:

The following standard conditions apply to all certification actions, except as noted above under Action 3 for denials.

1. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to section 13330 of the California Water Code and section 3867 of Title 23 of the California Code of Regulations (23 CCR).

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 23 CCR

section 3855(b) 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 (Actions 1 and 2) shall be conditioned upon total payment of the full fee required under 23 CCR section 3833, unless otherwise stated in writing by the certifying agency.

4. 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 law. For purposes of Clean Water Act (CWA) section 401(d), the applicability of any State law authorizing remedies, penalties, process, or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Water Quality Certification (WQC).

   a. In response to a suspected violation of any condition of this WQC, the Regional Water Quality Control Board (Regional Water Board) may require the holder of any permit or license subject to this certification to furnish, under penalty of perjury, any technical or monitoring reports the Regional 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.

   b. In response to any violation of the conditions of this WQC, the Regional Water Board may add to or modify the conditions of this certification as appropriate to ensure compliance.

ADDITIONAL CONDITIONS:

The following additional conditions apply to this certification:

1. This WQC applies towards the proposed project (Project) as described in the 401 application received by the Regional Water Board on February 14, 2013 and additional information was received on May 3, 2013.

2. The Applicant shall provide the Regional Water Board and other interested agencies with written notification of any significant modifications made to the Project prior to implementation of the modifications.

3. This WQC does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

4. This WQC does not authorize the Applicant or any associated party to trespass on any land or property unless the applicant has obtained written authorization or acquired a special use authorization permit from the land or property owner.

5. A copy of this WQC shall be provided to the appropriate onsite Supervisor for the Project. All personnel performing work on the proposed Project shall be familiar with the content of this WQC. Copies of the WQC shall be readily available at the Project site at all times during periods of active work and shall be presented to regulatory agency representatives upon request.

6. The Applicant shall grant Regional Water Board staff, or an authorized representative, upon presentation of credentials and other documents as may be required by law, to enter the Project site at reasonable times, to ensure compliance with the terms and conditions of this WQC and/or to determine the impacts the Project may have on waters of the United States.

7. The proposed Project shall not be enlarged or extend beyond the proposed Project impact area. The Applicant shall delineate the Project boundaries and staging areas with stakes, flags and/or temporary construction fencing.

8. The area of vegetation and soil disturbance shall be restricted to the smallest extent possible.

9. The Project shall not discharge substances in concentrations toxic to human, plant, animal, or aquatic life or that produce detrimental physiological responses.

10. The Project shall not discharge waste classified as "hazardous" as defined in Title 23 California Code of Regulations (CCR) section 2521, California Health and Safety Code section 25140, and Title 22, CCR, section 66260.10 et seq.

11. No oil, petroleum products, or rubbish shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the United States.

12. No equipment maintenance will be done within or near any stream channel where petroleum products or other pollutants from the equipment may enter waters of the United States.

13. Equipment refueling shall not occur within waters of the United States.

14. Any oil or grease leaks shall be immediately cleaned up.

15. The Applicant shall ensure that all contaminated material and/or contaminated soil removed or excavated from the Project site is properly loaded, transported, and disposed of in accordance with Federal, State, and local regulations.

16. Staging/storage areas for equipment and materials shall be located outside of waters of the United States.

17. The Applicant shall ensure that all disturbed and filled areas are adequately stabilized and protected from erosion and siltation by implementing appropriate soil stabilization, sedimentation and silt control measures.

18. Any flow diversion used during construction shall be designed in a manner to prevent pollution, minimize siltation, and shall provide flows to downstream reaches. Flows shall be maintained to support existing aquatic life and riparian wetlands and habitat that may be located upstream and downstream from any temporary diversion.

19. The Applicant shall restore drainages, to the greatest extent possible, to the original bank configuration, stream bottom width, and channel gradient.

20. All temporary facilities and impacts shall be removed and restored to the preexisting conditions and contours to the extent practicable.

21. Construction related materials and wastes shall be removed from the Project site upon completion of the Project.

22. The Applicant shall submit Notice to the Regional Water Board within 60-days of completion of the Project. The Notice shall include: 1) a detailed summary of the mitigation and restoration activities implemented during the Project and 2) provide photographic documentation that supports the information summarized in the Notice.

23. The Regional Water Board reserves the right to suspend, cancel, or modify and reissue this WQC, after providing notice to the Applicant and/or responsible Site-Supervisor, if the Regional Water Board determines that the Project fails to comply with any of the terms or conditions of this WQC.

24. The Applicant shall orally notify the Regional Water Board of any noncompliance that may impact the beneficial uses of waters of the United States, as soon as notification is possible and notification can be provided without substantially impeding measures necessary to address the noncompliance.

REGIONAL WATER QUALITY CONTROL BOARD CONTACT PERSON:

If you have any questions, please contact Jay Mirpour, Water Resources Control Engineer, at (760) 776-8981 or jmirpour@waterboards.ca.gov.

WATER QUALITY CERTIFICATION:

I hereby issue an order certifying that any discharge from the referenced Project will comply with the applicable provisions of sections 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, and with other applicable requirements of State law.

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 strict compliance with the applicants' Project description and the attached Project Information Sheet, and (b) compliance with all applicable requirements of the Regional Water Quality Control Board's Water Quality Control Plan (Basin Plan).

Robert E Perdue

ROBERT PERDUE, Executive Officer
Colorado River Basin Regional Water Quality Control Board

JJM/

cc: Veronica C. Chan, USACE Los Angles, Regulatory Division
Bill Orme, SWRCB, Division of Water Quality, Water Quality Certification Unit
Elizabeth Goldmann, U.S. Environmental Protection Agency, Region 9
Thomas A. Vandenberg, Office of Chief Counsel, SWRCB

File: Caltrans - SR 111 Reconstruction of Salt Creek Bridge, WDID No. 7A333131001

Mailing List:

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Note: (*) will e-mail electronic copy

PROJECT INFORMATION

Application Date: The application was received by the Regional Water Board on February 14, 2013 and additional information was received on May 3, 2013.

Applicant: California Department of Transportation
Contact: Scott Quinnell
(909) 383 6936

Applicant Representative: California Department of Transportation
Contact: Josh Jaffery
(909) 383-6386

Project Name: Caltrans - SR 111 Reconstruction of Salt Creek Bridge, WDID No. 7A333131001

Start and Completion: Construction will start on September 1, 2013 and completed by July 1, 2015.

Project Description: The proposed project is to upgrade the facility to meet current highway standards and improve operational characteristics that, currently, contribute to safety problems and operational inefficiencies. The project consists of the following activities:

- Upgrade the bridge to contain lane and shoulders to current design standards.
- Re-grade slopes surrounding the bridge to correct deep scouring by storm water with gravel mulch and pockets of rock slope protection.
- Install upgraded Metal Beam Guard Rail
- Rock slope protection will be replaced in-kind along the bridge abutments.
- Reconstruct new bridge footings, removing eight old rectangular piles to six new cylindrical piles.
- A retaining wall will be constructed along the newly widened road to support it, as an alternative to widening the base of the abutments.
- Re-vegetate the area for natural habitat disturbance due to project work.

Location: City or area: North Shore of Salton Sea, Riverside County, California. Longitude/ Latitude: -115 8' 44.03"/33 44'6.52"

Township/Range: Township 7 south, Range 9 East, San Bernardino Base Meridian, South 21 North West Corner

Acres and Linear Feet impacted:

Juristictional Wetland 0.0018 acre (Permanent), 0.2043 acre (Temporary)
Streambed (vegetated) 0.0008 acre (Permanent), 0.3180 acre (Temporary)

Dredge: N/A

Receiving Water(s): Salt Creek which discharges to the Salton Sea

Best Management Practices:

- No toxic and/or hazardous materials shall be stored near or within wash/drainage areas. To extent possible, these materials will be offsite and/or placed in appropriate secondary containment.

- Work and staging areas and temporary access routes will be sized, located and flagged so as to limit potential impacts to natural areas. Previous disturbed areas will be used to the extent feasible.

- No fueling or maintenance of equipment and/or vehicles shall occur adjacent or within the wash/drainage areas.

- Any materials placed in seasonally dry portions of the canal/ drainage areas that could be washed downstream or could be harmful to aquatic life shall be removed from the streambed prior to inundation by high flows.

- After completing the activities, the disturbed area will be restored to pre-existing contours and conditions to the extent feasible.

Federal Permit(s): U.S. Army Corps of Engineers file number SPL-2012-00528-VCC.

Status of CEQA: Caltrans adopted a Categorical Exemption, Class 2 (14 CCR 15300) for the Project on June 13, 2012. The Regional Water Board determined that the proposed project is categorically exempt from CEQA per CEQA Guidelines §15302 Categorical Exemption. Section 21084 of the Public Resources Code requires these Guidelines to include a list of classes of projects which have been determined not to

have a significant effect on the environment and which shall, therefore, be exempt from the provisions of CEQA. In response to that mandate, the Secretary for Resources has found that the Projects listed in CEQA Guidelines Section 15300 et seq. do not have a significant effect on the environment, and they are declared to be categorically exempt from the requirement for the preparation of environmental documents. In accordance with CEQA Guidelines section 15062, Regional Water Board shall file a Notice of Exemption with the Office of Planning and Research upon approval of the CWA section 401 WQC.

File: Caltrans - SR 111 Reconstruction of Salt Creek Bridge, WDID No. 7A333131001

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
INLAND DESERTS REGION
78078 COUNTRY CLUB DRIVE, SUITE 109
BERMUDA DUNES, CA 92203

STREAMBED ALTERATION AGREEMENT
NOTIFICATION NO. 1600-2013-0024-R6 REVISION 1
SALT CREEK/SALTON SEA
CALIFORNIA DEPARTMENT OF TRANSPORTATION
SALT CREEK BRIDGE REPLACEMENT

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and the California Department of Transportation (Permittee) as represented by Scott Quinnell.

RECITALS

WHEREAS, pursuant to Fish and G. Code (FGC) section 1602, Permittee notified CDFW on March 13, 2013 that Permittee intends to complete the project described herein.

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

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

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

PROJECT LOCATION

The project (Figure 1) is located at Salt Creek, a tributary to the Salton Sea, along State Route (SR) 111 at Post Mile (PM) 1.5 about 1.5 miles north of the Imperial and Riverside County line in an unincorporated area ten miles northwest of the City of Bombay Beach, in the County of Riverside, State of California; Section 28, Township 8 South, Range 11 East, U.S. Geological Survey (USGS) Quad Map Durmid. Latitude 33.49652^0 North, Longitude 115.84403^0 West.

PROJECT DESCRIPTION

The project (Figure 2) is limited to replacing the existing Salt Creek Bridge (Bridge Number 56-0236). The existing shoulders will be widened to 8 ft within the project limits and the bridge rail as well as connecting Metal Beam Guard Rails (MBGR). Demolition

of the existing bridge deck will occur as part of the bridge upgrade. As part of the demolition, the center piers will be excavated to three feet and replaced with top soil. The bridge demolition and upgrade will occur to one lane at a time in order to allow passage of traffic during the duration of the project. A retaining wall will be constructed along the newly widened road to support it, as an alternative to widening the base of the abutments. The rock slope protection will be replaced in-kind along the bridge abutments. The current three pier bends (there are two of these, indicating six piers), will be cut (not excavated) and two 6 foot diameter piles will be the new footings within the streambed (this will be a total of four piles). To address the scouring along the edges of SR-111, leading into the streambed, Caltrans will fill the deep scours with gravel and place gravel mulch over the gentle slopes to curb water flow effects. Erosion control and revegetation measures (Figure 2) will be implemented as described in the Habitat Mitigation and Monitoring Plan (HMMP) required by Measure 4.1.

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include: desert pupfish (*Cyprinidon macularius*), California black rail (*Laterallus jamaicensis*), Yuma clapper rail (*Rallus longirostris yumanensis*), migrant bird species, and all other fish and wildlife resources in the project vicinity.

The adverse effects the project could have on the fish or wildlife resources identified above include the permanent loss of nesting habitat and/or foraging habitat. The project will permanently alter 0.0005 acres of wetlands and 0.0021 acres of Cismontane Alkali Marsh. The project will temporarily impact 0.0486 acres of wetlands and 0.4738 acres of Cismontane Alkali Marsh.

Total permanent project impacts of 0.0026 are authorized under this Agreement but no net loss of Cismontane Alkali Marsh may occur (see Measure 3.1). Total temporary project impacts of 0.5224 are authorized under this Agreement. If any additional impacts are anticipated to riparian habitat and/or streambed habitat, during project activities, Permittee shall submit an application for an amendment to this Agreement for authorization of those impacts.

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

Permittee shall meet each administrative requirement described below.

1.1 Documentation at Project Site. Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to CDFW personnel, or personnel from another state, federal, or local agency upon request.

1.2 Providing Agreement to Persons at Project Site. Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the project at the project site on behalf of Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.

1.3 Notification of Conflicting Provisions. Permittee shall notify CDFW if Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, CDFW shall contact Permittee to resolve any conflict.

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

1.5 Take of Nesting Birds. Sections 3503, 3503.5, and 3513 of the California Fish and G. Code prohibit the take of all birds and their active nests, including raptors and other migratory non-game birds (as listed under the United States Migratory Bird Treaty Act).

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 Desert Pupfish. The following measures will be implemented to avoid and minimize impacts to desert pupfish.

2.1.1 Caltrans will limit working in the wetted portion of the stream.

2.1.2 A CDFW biologist will conduct, supervise and/or approve all aspects of capture, relocation, and exclusion of desert pupfish from the site.

2.1.3 At the discretion of CDFW and with the approval of the U.S. Fish and Wildlife Service (USFWS), CDFW may authorize qualified or trained staff from other agencies or affiliations to assist with capture, relocation, and exclusion of desert pupfish from the site.

2.1.4 A project specific protocol will be provided by the CDFW biologist prior to one week before blocking seine placement, capture, and relocation. The CDFW biologist will provide training for implementation of avoidance and minimization measures for desert pupfish.

2.1.5 Caltrans will place 1/8 inch or smaller mesh block seines at the limits of the Caltrans right-of-way (ROW) at least ten calendar days prior to construction activities.

2.1.6 After the blocking seines are in place, 1/8 inch mesh Gee's minnow traps will be used to capture pupfish within the work area. Traps will be baited with canned cat food (approximately 1.5 ounces) placed in perforated plastic bags (one per trap) and will be set all day (defined as staff work hours) every day, for five consecutive days during the week prior to the start of construction work.

2.1.7 Traps should be placed as closely as possible, at least one trap per ten feet when possible unless otherwise directed by the CDFW biologist. Traps should be checked every two hours during winter months, and every hour during the rest of the year when daytime air temperatures exceed 95^0 F. When traps are pulled from Salt Creek, any traps containing pupfish shall be immediately submerged in a 5-gallon bucket containing clean water of sufficient quantity (bucket approximately ¾ full). After all fish have been gently removed from the trap, pupfish shall be gently netted from the bucket and gently transferred to an aerated cooler containing clean water of sufficient quantity (cooler approximately ¾ full). Water for the buckets and coolers shall be taken from Salt Creek except when water quantity is insufficient to allow for water to be efficiently taken from the creek. In this case, water for the buckets and coolers shall be taken from similar nearby habitats, at the discretion of the CDFW biologist. Care shall be taken to avoid spilling cat food, mud, or other debris into the water, which shall be changed as needed. No more than 50 pupfish shall be placed in each 5-gallon bucket or cooler. Pupfish shall be kept in the coolers no longer than two hours before being relocated, and if fish show signs of stress or injury, they shall be released immediately into the nearest suitable water as determined by the CDFW biologist.

2.1.8 Trapping shall not occur during or immediately after a flood event or other event which may jeopardize the pupfish. Trapping shall not occur when water temperatures exceed 95^0 F. Trapping shall resume when conditions improve enough to allow for the safe capture and relocation of pupfish, based on the judgment of the CDFW biologist.

2.1.9 Pupfish collection methods shall minimize fish stress and habitat disturbance to the greatest extent practicable. Captured pupfish shall be immediately placed in a bucket or cooler of sufficient size and aeration to minimize stress. Five-gallon buckets or coolers are typically used to temporarily hold pupfish. Traps typically shall be set in water deep enough to submerge the entire trap and shall be checked every one to two hours. Dip nets may be used when the water depth is too shallow to set minnow traps.

2.1.10 Pupfish captured within the work area will be moved to sites determined by the CDFW biologist to be the most suitable for pupfish at the time the bridge work is conducted. These locations will be selected by the CDFW biologist one to two weeks prior to the beginning of the trapping/relocation, and will be based primarily on water quality and quantity in Salt Creek (or, if necessary, in other waters), the weather (primarily air temperature, but also other factors), the number of personnel available to assist with the capture and relocation efforts, and the number of captured pupfish.

2.1.11 The pupfish capture and relocation shall be documented as completely as possible. Documentation will include, as a minimum, the following: names of CDFW personnel and/or other non-CDFW personnel involved, number of pupfish captured and/or translocated, date, time and site of collection and relocation. Site information shall include the Global Positioning System (GPS) coordinates for the capture and relocation sites. Basic water quality parameters, particularly water temperature and dissolved oxygen recorded from the waters of origin as well as waters of destination, shall be recorded.

2.1.12 When pupfish are being translocated, proper handling procedures shall be used as determined by the CDFW biologist. This may include, but is not limited to, aeration, sedation, darkness, temperature control and/or other appropriate measures. Pupfish shall be periodically monitored during translocation at the discretion of the CDFW biologist. Five-gallon coolers with lids are ideal for transporting relatively few (defined here as 50 or less) pupfish, usually for a short distance (defined here as less than 50 miles).

2.1.13 All pupfish shall be acclimated to the ambient water temperature and water quality of their receiving environment prior to their release. An appropriate volume of water from their receiving habitat environment shall be added to the water used in the cooler, and pupfish shall be allowed to acclimate within a time period to be determined by the CDFW biologist. Pupfish shall be released in a manner that results in the least amount of stress to the fish, as determined by the CDFW biologist.

2.1.14 If any method of egress is observed, work will stop. The CDFW biologist will be consulted for appropriate procedures to determine if pupfish have entered the site and what procedures will be necessary to remove the pupfish. Work will proceed when CDFW-approved procedures have been implemented and exclusionary seines have been re-established.

2.1.15 A biological monitor (see Measure 2.7) will develop and administer a worker education program to all construction personnel (see Measure 2.8).

2.1.16 A biological monitor (see Measure 2.7) will be on site to monitor bridge demolition and will halt construction activities if debris or dust is observed to be entering pupfish habitat.

2.1.17 Negative pressure (vacuum) equipment will be used to minimize fugitive dust during bridge pier removal.

2.1.18 Netting used in combination with non-mesh material (tarps or the equivalent) will be positioned under bridge deck demolition activities to capture debris and minimize fugitive dust from entering pupfish habitat.

2.2 Nesting Bird Surveys. Permittee shall not remove vegetation from the project site during the period of March 15 through September 15 to avoid impacts to nesting birds. If project construction cannot be avoided during the period of March 15 through September 15, Permittee shall have a CDFW-approved biologist(s) survey all potential nesting vegetation within the project site for nesting birds, prior to commencing project activities (including construction and/or site preparation). **Permittee shall obtain CDFW approval of the biologist(s) 30 days prior performing nesting bird surveys**. Surveys shall be conducted at the appropriate time of day, no more than three days prior to vegetation removal and/or disturbance. Documentation of surveys and findings shall be received by CDFW prior to conducting project activities. **Please reference SAA # 1600-2013-0024-R6.** If no nesting birds were observed, project activities may begin. If an active bird nest is located, the nest site shall be fenced a minimum of 200 feet (500 feet for endangered, threatened, and candidate species; species of special concern; and all raptors) in all directions, and this area shall not be disturbed until after September 15 and until the nest becomes inactive. If threatened or endangered species are observed in the area, no work shall occur during the breeding season (March 15 through September 15) to avoid direct or indirect (noise) take of listed species.

2.3 Yuma Clapper Rail/California Black Rail Surveys. Preconstruction surveys will be conducted to determine if Yuma clapper rails or California black rails are present. If present, no activities will occur that will result in Take under the California Endangered Species Act (CESA). One survey shall be conducted between 14 and 30 days prior to conducting project activities and a second survey shall occur within 24 hours of starting project activities.

2.4 Pollution and Litter. The Permittee shall comply with all litter and pollution laws. All contractors, subcontractors, and employees shall also obey these laws and it shall be the responsibility of the Permittee to ensure compliance.

2.4.1 The Permittee shall not allow water containing mud, silt, or other pollutants from grading, aggregate washing, or other activities to enter a lake,

streambed, or flowing stream or be placed in locations that may be subjected to high storm flows.

2.4.2 Spoil sites shall not be located within a lake, streambed, or flowing stream or locations that may be subjected to high storm flows, where spoil shall be washed back into a lake, streambed, or flowing stream where it will impact streambed habitat and aquatic or riparian vegetation.

2.4.3 Raw cement/concrete or washings thereof, asphalt, paint, or other coating material, oil or other petroleum products, or any other substances which could be hazardous to fish and wildlife resources resulting from project related activities shall be prevented from contaminating the soil and/or entering the waters of the State. These materials, placed within or where they may enter a lake, streambed, or flowing stream by the Permittee or any party working under contract or with the permission of the Permittee, shall be removed immediately.

2.4.4 No broken concrete, cement, debris, soil, silt, sand, bark, slash, sawdust, rubbish, or washings thereof, oil or petroleum products, or other organic or earthen material from any construction or associated activity of whatever nature shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the State. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any lake, streambed, or flowing stream.

2.4.5 No equipment maintenance shall be done within or near any lake, streambed, or flowing stream where petroleum products or other pollutants from the equipment may enter these areas under any flow.

2.5 Non-native plant species. CDFW recommends the use of native plants to the greatest extent feasible in the landscaped areas adjacent to and/or near mitigation/open space areas and within or adjacent to stream channels. Permittee shall not plant, seed, or otherwise introduce invasive non-native plant species to the landscaped areas adjacent to and/or near mitigation/open space areas and within or adjacent to stream channels (minimum 100 foot setback from open space areas and 150 foot setback from stream channels and wetland/riparian mitigation sites). Invasive non-native plant species not to be used include those species listed on the "California Invasive Plant Inventory, February 2006" and the "February 2007 Inventory Update", (which are updates to Lists A & B of the California Exotic Pest Plant Council's list of "Exotic Pest Plants of Greatest Ecological Concern in California as of October 1999"). This list includes: pepper trees, pampas grass, fountain grass, ice plant, myoporum, black locust, capeweed, tree of heaven, periwinkle, bush lupine, sweet alyssum, English ivy, French broom, Scotch broom, Spanish broom, and pepperweed. A copy of the

complete list can be obtained by contacting the California Invasive Plant Council by phone at (510) 843-3902, at their website at www.cal-ipc.org, or by email at info@cal-ipc.org.

2.6 Best Management Practices. Permittee shall actively implement best management practices (BMPs) to prevent erosion and the discharge of sediment in to streams and lakes during project activities. BMPs shall be monitored daily and repaired if necessary to ensure maximum erosion and sediment control. All fiber rolls, straw waddles, and/or hay bales utilized within and adjacent to the project site shall be free of non-native plant materials. Fiber rolls or erosion control mesh shall be made of loose-weave mesh that is not fused at the intersections of the weave, such as jute, or coconut (coir) fiber, or other products without welded weaves. Non-welded weaves reduce entanglement risks to wildlife by allowing animals to push through the weave, which expands when spread.

2.7 Biological Monitor. A CDFW-approved biologist shall be on-site to monitor bridge demolition (to prevent debris and dust from entering pupfish habitat) and all activities that result in the clearing of sensitive habitat as well as grading, excavation, and/or other ground-disturbing activities in jurisdictional areas. **Permittee shall obtain CDFW approval of the biological monitor(s) 30 days prior to initiation of any project activities in jurisdictional areas.** Permittee shall delineate with markers and/or fencing the limits of grading and the jurisdictional areas, perform necessary surveys, and take photographs during the construction process, as required by this Agreement. The biological monitor is required to halt construction activities if threatened or endangered species are identified and notify the appropriate agencies immediately. The biological monitor shall halt demolition if debris or dust is not being captured by the debris/dust control netting and tarp (see Measure 2.1.18) or if dust is being moved by wind into waters beyond the work area. Work may resume when the situation is remedied (as determined by the biological monitor). The biological monitor shall have proven knowledge of the general area and experience handling sensitive species present in the project area.

2.8 Education Program. Permittee shall conduct an education program for all persons employed or otherwise working in the Project Area before performing any work. The program shall consist of a presentation from the Biological Monitor that includes a discussion of the biology and general behavior of sensitive species in the area, information about the distribution and habitat needs of these species, sensitivity of these species to human activities, sensitive species status pursuant to CESA including legal protection, and Project-specific protective measures described in this Agreement. Permittee shall provide interpretation for non-English speaking workers, and the same instruction shall be provided to any new workers before they are authorized to perform work in the Project Area. Upon completion of the program, employees shall sign a form (signature sheet) stating they attended

the program and understand all protection measures. A copy of the signature sheet for this training will be provided to CDFW.

2.9 Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP). The project is located with the Dos Palmas Conservation Area of the CVMSHCP. The project is required to comply with all conservation, avoidance, minimization, and mitigation measures identified in section 4.4 of the CVMSHCP with the exception of the requirement to exclude pupfish from the project impact area by establishing a 50-meter buffer upstream and downstream of the project site. The aforementioned buffer has been reduced to approximately 17 meters by mutual agreement of Caltrans, USFWS, and CDFW in order to stay within the Caltrans ROW. The project will also comply with the land use adjacency guidelines to avoid and minimize indirect effects identified within Section 4.5 of the CVMSHCP.

3. Compensatory Measures

To compensate for adverse impacts to fish and wildlife resources identified above that cannot be avoided or minimized, Permittee shall implement each measure listed below.

3.1 On-site Habitat Restoration. **Within 30 days of project completion,** Permittee shall initiate restoration of all impacted areas by seeding/planting with California local native species. The plant palette shall be approved by CDFW. Planting schedule may be altered with CDFW concurrence. Prior to project initiation existing (pre-project) plant density of iodine bush (*Allenrolfea occidentalis*).and other native vegetation (as needed) will be estimated using line transect methodology. Iodine bush is the dominant plant of the Cismontane Alkali Marsh vegetation community present on site. Pre-project iodine bush density will be used to determine desired planting density for containerized plants in habitat restoration efforts. The area of Cismontane Alkali Marsh expected to be impacted by the project is 0.4759 acres. Re-establishment of iodine bush and/or other Cismontane Alkali Marsh plants on 0.4759 acres will be considered to be no net loss of Cismontane Alkali Marsh as specified in Section 4.3.19 of the CVMSHCP and as defined in the success criteria in the HMMP (see measure 4.1). On-site habitat restoration (revegetation) will be performed on the project site as described in the HMMP (see Measure 4.1). At this time, habitat restoration is planned to consist of site preparation, hydroseeding with seeds of native plant species in combination with planting of containerized plants, irrigation (as needed), invasive species control (see Measures 3.4 and 3.5) and monitoring. It is anticipated that seeds of saltgrass (*Distichlis spicata*) and iodine bush will be used in hydroseeding. Any shrubs that will be planted will be iodine bush and/or other Cismontane Alkali Marsh plant species. Seed application rates, planting design, planting schedule, irrigation design and schedule (if used) and success criteria will be described in a CDFW-approved revegetation plan and incorporated into the HMMP (see Measure 4.1). Planting design may be altered with CDFW concurrence. Revegetation monitoring will continue for five years post-planting.

Invasive species control and monitoring will continue for five years post-project (construction) completion.

3.2 Plant Palette. All plant species installed within temporary impact areas shall include only **local California native** container plants, cuttings, and/or seed mix, and shall be typical of the existing native plant species present in the existing riparian areas within and adjacent to the project site. CDFW recommends that plant material be installed between October 1 and April 30 to maximize the benefits of the winter rainy season.

3.3 Invasive Species Control. Non-native plants will be removed and/or controlled within the project area and for a period of five years post-project completion. Invasive species control will be accomplished through the means described in the HMMP (see Measure 4.1). Success criteria will also be described in the HMMP.

3.4 Invasive Plant Monitoring. Occurrence of non-native plants will be monitored within the project site and mitigation areas for five years post-project completion as described in the HMMP.

4. Reporting Measures

Permittee shall meet each reporting requirement described below.

4.1 Habitat Mitigation and Monitoring Plan. **No later than 90 days** after the signature to this Agreement and prior to the initiation of any project activities in state jurisdictional areas, the Permittee will submit to CDFW a HMMP designed to meet the overall goals identified in section 3. At a minimum, the HMMP shall include the following information: (a) a description of the existing physical conditions at the project site, (b) a revegetation plan for the project site (including success criteria), (c) a plan for control of non-native invasive plant species and (d) success criteria for achieving control.

4.2 Photo Documentation. Four photo monitoring points will be established at the project site. Photo Points No. 1-2 will be established at the elevation of the pavement approaching the bridge from the south and the north. The southern point will face northward toward the bridge and the northern point will face southward toward the bridge. Photo Point No. 3 will be established at a point that provides an unobstructed view of the impacted and revegetated area within the streambed to the south of the approximate thalweg of the channel. Photo Point No. 4 will be established at a point that provides an unobstructed view of the impacted and revegetated area within the streambed to the north of the approximate thalweg of the channel. Photo documentation will be performed from each point prior to project initiation and after project completion. These photos will be included in the Project Completion Report (see Measure 4.3). Photo

documentation will also be performed annually and included in the Annual Reports (see Measure 4.4).

4.3 Project Completion Report. **No later than 90 days after project completion,** the Permittee will submit to CDFW a report that summarizes all project activities including the implementation of all items specified in Section 2. This report will include but not be limited to: photo documentation, all survey results, avoidance/minimization measures implemented and maps that display work areas, surveyed areas and locations of any species specified in Section 2 and/or any nest of species specified in Section 2.

4.4 Annual Reporting. An annual report will be submitted to CDFW for five years following signature of this Agreement providing photo documentation, documenting invasive species control and monitoring activities and degree of achievement of success criteria for each year of the Agreement. Reports will be due 60 days after the end of the calendar year. **The next annual report for the 2013 calendar year is due no later than March 1, 2014**.

4.5 Notification to the California Natural Diversity Data Base (CNDDB). If any sensitive species are observed on or in proximity to the project site, or during project surveys, the Permittee shall submit CNDDB forms and maps to the CNDDB within five working days of the sightings, and provide the regional CDFW office with copies of the CNDDB forms and survey maps. The CNDDB form is available online at www.dfg.ca.gov/whdab/pdfs/natspec.pdf. **This information shall be mailed within five days to:** California Department of Fish and Wildlife Natural Diversity Data Base, 1807 13th Street, Suite 202, Sacramento, CA 95814. Phone (916) 324-3812. A copy of this information will be mailed within five days to the CDFW Region 6, 78078 Country Club Drive, Suite 109, Bermuda Dunes, CA 92203. **ATTN: Streambed Team. Please reference SAA# 1600-2013-0024-R6.**

4.6 Notification of Start of Construction. The Permittee shall notify CDFW, in writing, at least five days prior to initiation of project activities in state jurisdictional areas and at least five days prior to completion of project activities in jurisdictional areas. Notification shall be mailed to the CDFW Region 6, 78078 Country Club Drive, Suite 109, Bermuda Dunes, CA 92203. **ATTN: Streambed Team. Please reference SAA# 1600-2013-0024-R6.**

CONTACT INFORMATION

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

To Permittee:

Scott Quinnell
California Department of Transportation
464 West 4th Street, 6th Floor, MS 822
San Bernardino, CA 92401
(909) 383-6494
scott.quinnell@dot.ca.gov

To CDFW:

Department of Fish and Wildlife
Inland Deserts Region
78078 Country Club Drive, Suite 109
Attn: Lake and Streambed Alteration Program – Charles Land
Notification #1600-2013-0024-R6
(760) 200-9358
Charles.Land@wildlife.ca.gov

LIABILITY

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

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

SUSPENSION AND REVOCATION

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

Before CDFW suspends or revokes the Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice

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

ENFORCEMENT

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

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

OTHER LEGAL OBLIGATIONS

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

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

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

AMENDMENT

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

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

TRANSFER AND ASSIGNMENT

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

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

EXTENSIONS

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

If Permittee fails to submit a request to extend the Agreement prior to its expiration, Permittee must submit a new notification and notification fee before beginning or continuing the project the Agreement covers (FGC section 1605(f)).

EFFECTIVE DATE

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

TERM

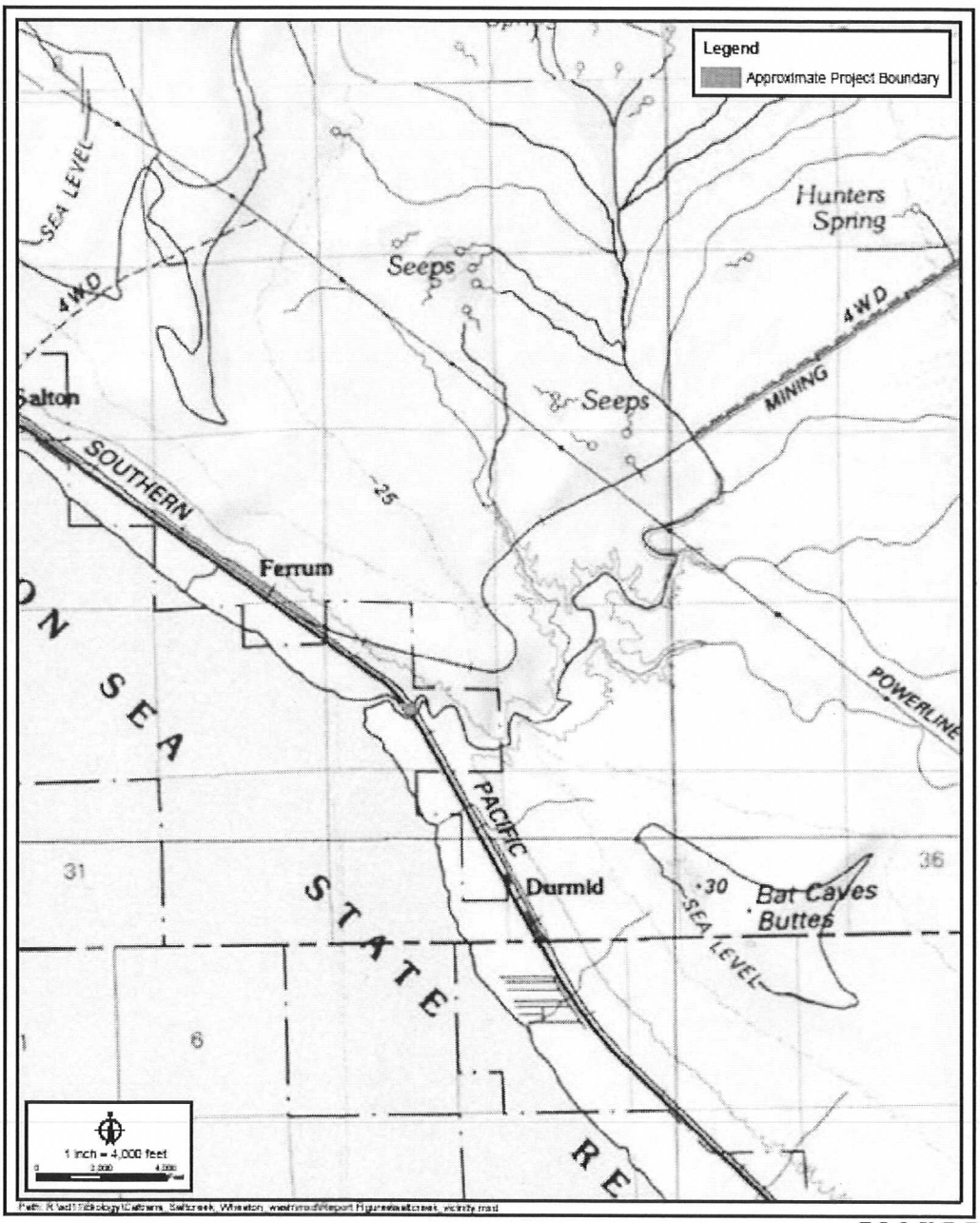
This Agreement shall expire on December 31, 2018, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

EXHIBITS

The documents listed below are included as exhibits to the Agreement and incorporated herein by reference.

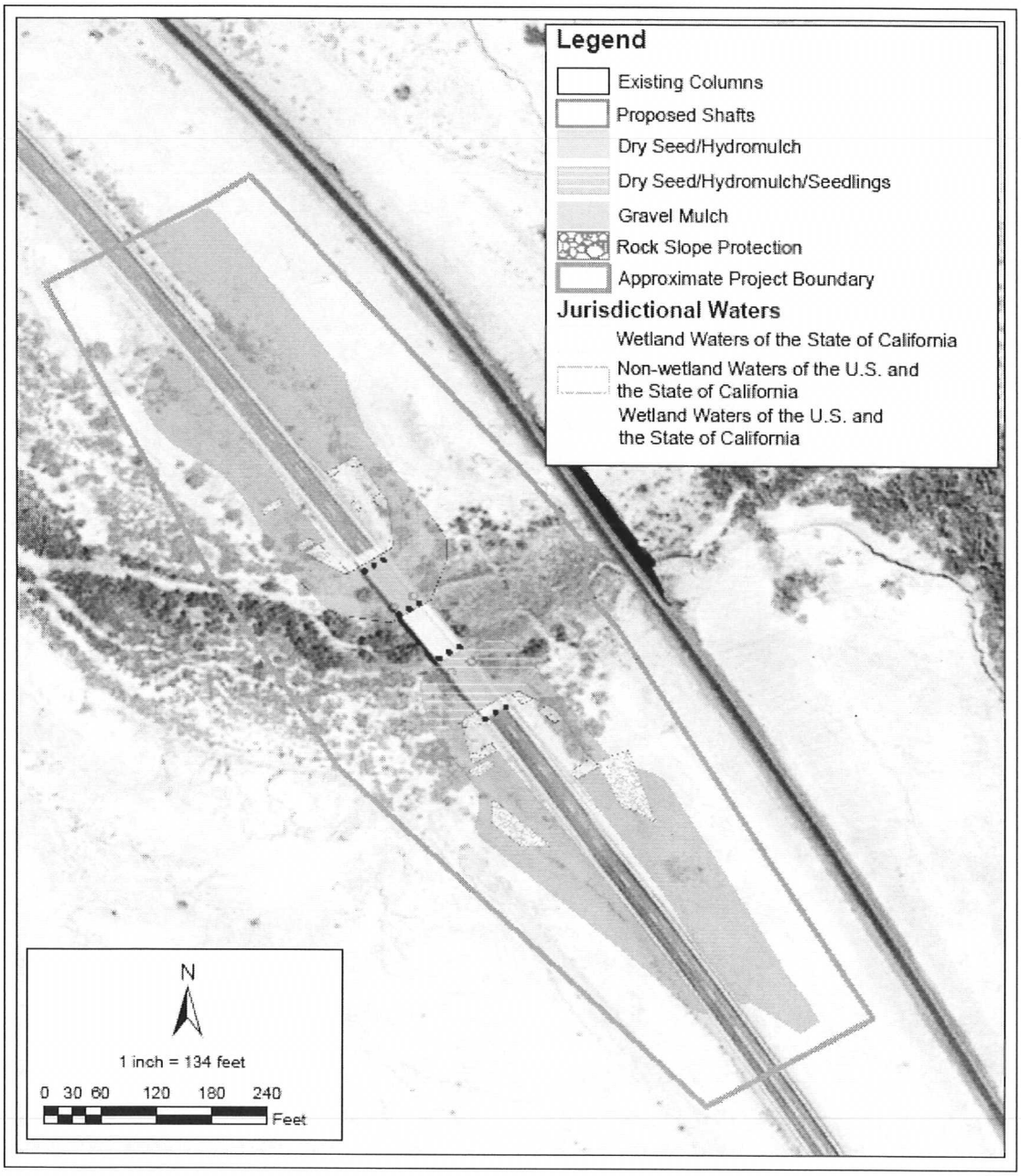
Exhibit A. Two Maps/Diagrams

Figure 1. Salt Creek Bridge Replacement Project Vicinity Map
Figure 2. Salt Creek Bridge Replacement Proposed Work Map



Project Vicinity
Salt Creek Bridge
California Department of Transportation

FIGURE
1



Proposed Work
Salt Creek Bridge
California Department of Transportation

FIGURE
2

AUTHORITY

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

AUTHORIZATION

This Agreement authorizes only the project described herein. If Permittee begins or completes a project different from the project the Agreement authorizes, Permittee may be subject to civil or criminal prosecution for failing to notify CDFW in accordance with FGC section 1602.

CONCURRENCE

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

FOR CALIFORNIA DEPARTMENT OF TRANSPORTATION

Scott Quinnell — 6-6-13

Scott Quinnell
Date

Senior Environmental Planner
Biological Studies and Permits
District 8

FOR DEPARTMENT OF FISH AND WILDLIFE

for — 6/10/2013

Leslie MacNair
Date

Environmental Program Manager

Prepared by: Charles Land
Environmental Scientist

DEPARTMENT OF THE ARMY
Los Angeles District Corps of Engineers
P.O. Box 532711
Los Angeles, CA 90017-3401

June 21, 2013

REPLY TO
ATTENTION OF
Regulatory Division

Scott Quinnell
California Department of Transportation, District 8
Senior Environmental Planner
464 West 4th Street Fl 6
San Bernardino, California 92401-1400

Dear Mr. Quinnell:

Enclosed you will find a signed copy of your Department of the Army Permit (File No. SPL-2012-00528-VCC). Please retain this copy for your files.

Thank you for participating in our regulatory program. If you have any questions, please contact Veronica Chan at 213-452-3292 or via e-mail at Veronica.C.Chan@usace.army.mil.

Please be advised that you can now comment on your experience with Regulatory Division by accessing the Corps web-based customer survey form at: http://per2.nwp.usace.army.mil/survey.html.

"Building Strong and Taking Care of People!"

Sincerely,

Mark Cohen
Deputy Chief, Regulatory Division

Enclosure(s)

LOS ANGELES DISTRICT
U.S. ARMY CORPS OF ENGINEERS

DEPARTMENT OF THE ARMY PERMIT

Permittee: California Department of Transportation, District 8 (POC: Scott Quinnell)

Permit Number: SPL-2012-00528-VCC

Issuing Office: Los Angeles District

Note: The term "you" and its derivatives, as used in this permit, means the Permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

To permanently discharge fill into 0.002 acre of wetland and 0.001 acre of non-wetland waters of the U.S. and to temporarily discharge fill into 0.21 acre of wetland and 0.32 acre of non-wetland waters of the U.S. pursuant to section 404 of the Clean Water Act of 1972, as amended, in association with the replacement and widening of the Highway 111 Salt Creek Bridge to accommodate standard width lanes and shoulders, as shown on the attached drawings.

Specifically, you are authorized to:

1. Construct six new 6-foot-diameter piers with a new bridge constructed using pre-cast bridge girder segments launched or placed in-situ by overhead cranes perched on the existing abutments resulting in permanent discharge of fill material into 0.002 acre of wetland and 0.001 acre of non-wetland waters of the U.S.; and
2. Discharge temporary fill material into 0.21 acre of wetland and 0.32 acre of non-wetland waters of the U.S. in association with the following:

- Temporary equipment and access roads during construction to remove the existing bridge and piers and to construct a new bridge and piers within the ESA fencing area (shown on the attached Figure 4B).
- Removal of eight piers (3-foot by 3-foot piers) excavated to a depth of two feet under the current ground surface.
- Replace the rock rip rap at the base of the bridge abutments with similar ungrouted rock rip rap where needed within waters of the U.S. and place additional rock rip rap on the slopes of the roadway outside of waters of the U.S.

Project Location: Within Salt Creek near the City of Mecca, Riverside County, California.

Permit Conditions:

General Conditions:

1. **The time limit for completing the authorized activity ends on June 20, 2018.** If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification from this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished with the terms and conditions of your permit.

Special Conditions:

1. The Permittee shall abide by the terms and conditions of the Clean Water Act (CWA) section 401 Water Quality Standards Certification, dated May 14, 2013.

2. The Permittee shall clearly mark the limits of the workspace with flagging or similar means to ensure mechanized equipment does not enter avoided waters of the U.S. areas shown in the attached figures. Adverse impacts to waters of the U.S. beyond the Corps Regulatory Division-approved construction footprint are not authorized. Such impacts could result in permit suspension and revocation, administrative, civil or criminal penalties, and/or substantial, additional, compensatory mitigation requirements.

3. Upon project completion, all temporary fills shall be removed and all temporarily affected wetland and non-wetland waters of the U.S. and adjacent slopes shall be re-contoured to pre-construction conditions. In accordance with the Salt Creek Bridge Replacement on State Route 111 Habitat Mitigation and Monitoring Plan (dated May 2013), the Permittee shall hydro-mulch, seed, or replant, where possible, the disturbed portions of the earthen stream bottoms and banks with native, non-invasive species, as appropriate to the affected areas, to reduce the potential for erosion. The Permittee shall submit the proposed planting palette for review and approval by the Corps Regulatory Division prior to initiation of work within waters of the U.S. The Permittee shall ensure the hydro-mulched, seeded, or replanted areas are maintained and monitored for a period of five years after completing the seeding and planting activities, such that less than 10 percent of the areas disturbed by the project are vegetated by non-native and invasive plant species. In addition, the Permittee shall hand remove non-native, invasive plants within waters of the U.S. within the Biological Study Area (see Approximate Project Boundary on Figure 3) and dry seed with native, non-invasive species. The Permittee shall ensure the Biological Study Area is maintained and monitored for a period of five years after completing the seeding and planting activities such that less than 10 percent of the area within wetland and non-wetland waters of the U.S. are vegetated by non-native and invasive plant species. To avoid impacts to desert pupfish, the areas of the channel with active flows shall not be disturbed. If disturbance to the perennial areas of the channel is required, approval from the Corps is required prior to disturbance. The Permittee shall submit a memorandum by April 15th after each year of annual maintenance and monitoring. The memo shall indicate the project impact areas on a map, when temporary construction areas were re-contoured to pre-construction conditions, when native seeding and planting was completed, the species and percent cover (absolute) of invasive and/or non-invasive plant

species that occur onsite each year prior to treatment, and when and how many/the extent of invasive and/or non-invasive plant species were removed.

4. This Corps permit does not authorize you to take any threatened or endangered species, in particular the desert pupfish (*Cyprinodon macularius*) or the Yuma clapper rail (*Rallus longirostris yumanensis*) or adversely modify designated critical habitat for any federally listed species. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g. ESA section 10 permit, or a Biological Opinion (BO) under ESA section 7, with "incidental take" provisions with which you must comply). The enclosed USFWS BO (May 8, 2012) contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached BO, terms and conditions of which are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The Corps and USFWS are the appropriate authority to determine compliance with the terms and conditions and reasonable and prudent measures.

5. Within 45 calendar days of completing authorized work in waters of the U.S., the Permittee shall submit to the Corps Regulatory Division a memo including the following:
   A) Date(s) work within waters of the U.S. was initiated and completed;
   B) Summary of compliance status with each special condition of this permit (including any noncompliance that previously occurred or is currently occurring and corrective actions completed or being taken to achieve compliance);
   C) Color photographs taken at the project site before and after construction for those aspects directly associated with impacts to waters of the U.S.;
   D) One copy of as-built drawings for the entire project (all sheets must be signed, dated, to-scale, and no larger than 8.5 x 11 inches); and
   E) Signed Certification of Compliance.

6. Pursuant to 36 C.F.R. section 800.13, in the event of any discoveries during construction of either human remains, archeological deposits, or any other type of historic property, the Permittee shall notify the Corps' Regulatory Division and Archeology staff (Steve Dibble at 213-452-3849 or John Killeen at 213-452-3861) within 24 hours. The Permittee shall immediately suspend all work within 100 feet of any area(s) where potential cultural resources are discovered. The Permittee shall not resume construction in the area surrounding the potential cultural resources until the Corps Regulatory Division re-authorizes project construction, per 36 C.F.R. section 800.13.

Further Information:

1. Congressional Authorities. You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the River and Harbor Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measure ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give you favorable consideration to a request for an extension of this time limit.

Your signature below, as Permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Scott Quinnell
California Department of Transportation, District 8

6-20-13
DATE

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Mark D. Cohen
Deputy Chief, Regulatory Division

6-21-13
DATE

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

TRANSFEREE

DATE

LOS ANGELES DISTRICT
U.S. ARMY CORPS OF ENGINEERS

NOTIFICATION OF COMMENCEMENT OF WORK FOR DEPARTMENT OF THE ARMY PERMIT

Permit Number: *SPL-2012-00528-VCC*
Name of Permittee: *California Department of Transportation, District 8 (POC: Scott Quinnell)*
Date of Issuance: *June 20, 2013*

Date work in waters of the U.S. will commence: _____
Estimated construction period (in weeks): _____
Name & phone of contractor (if any): _____

Please note that your permitted activity is subject to a compliance inspection by an Army Corps of Engineers representative. If you fail to comply with this permit you may be subject to permit suspension, modification, or revocation.

I hereby certify that I, and the contractor (if applicable), have read and agree to comply with the terms and conditions of the above referenced permit.

_____ _____
Signature of Permittee Date

At least ten (10) days prior to the commencement of the activity authorized by this permit, sign this certification and return it using any ONE of the following three (3) methods:

(1) E-MAIL a statement including all the above information to: Veronica.C.Chan@usace.army.mil
OR
(2) FAX this certification, after signing, to: 213-452-4196
OR
(3) MAIL to the following address:

U.S. Army Corps of Engineers
Regulatory Division
ATTN: CESPL-RG-SPL-2012-00528-VCC
P.O. Box 532711
Los Angeles, CA 90017-3401

LOS ANGELES DISTRICT
U.S. ARMY CORPS OF ENGINEERS

NOTIFICATION OF COMPLETION OF WORK AND CERTIFICATION OF COMPLIANCE WITH DEPARTMENT OF THE ARMY PERMIT

Permit Number: *SPL-2012-00528-VCC*
Name of Permittee: *California Department of Transportation, District 8 (POC: Scott Quinnell)*
Date of Issuance: *June 20, 2013*

Date work in waters of the U.S. completed: _____
Construction period (in weeks): _____
Name & phone of contractor (if any): _____

Please note that your permitted activity is subject to a compliance inspection by an Army Corps of Engineers representative. If you fail to comply with this permit you may be subject to permit suspension, modification, or revocation.

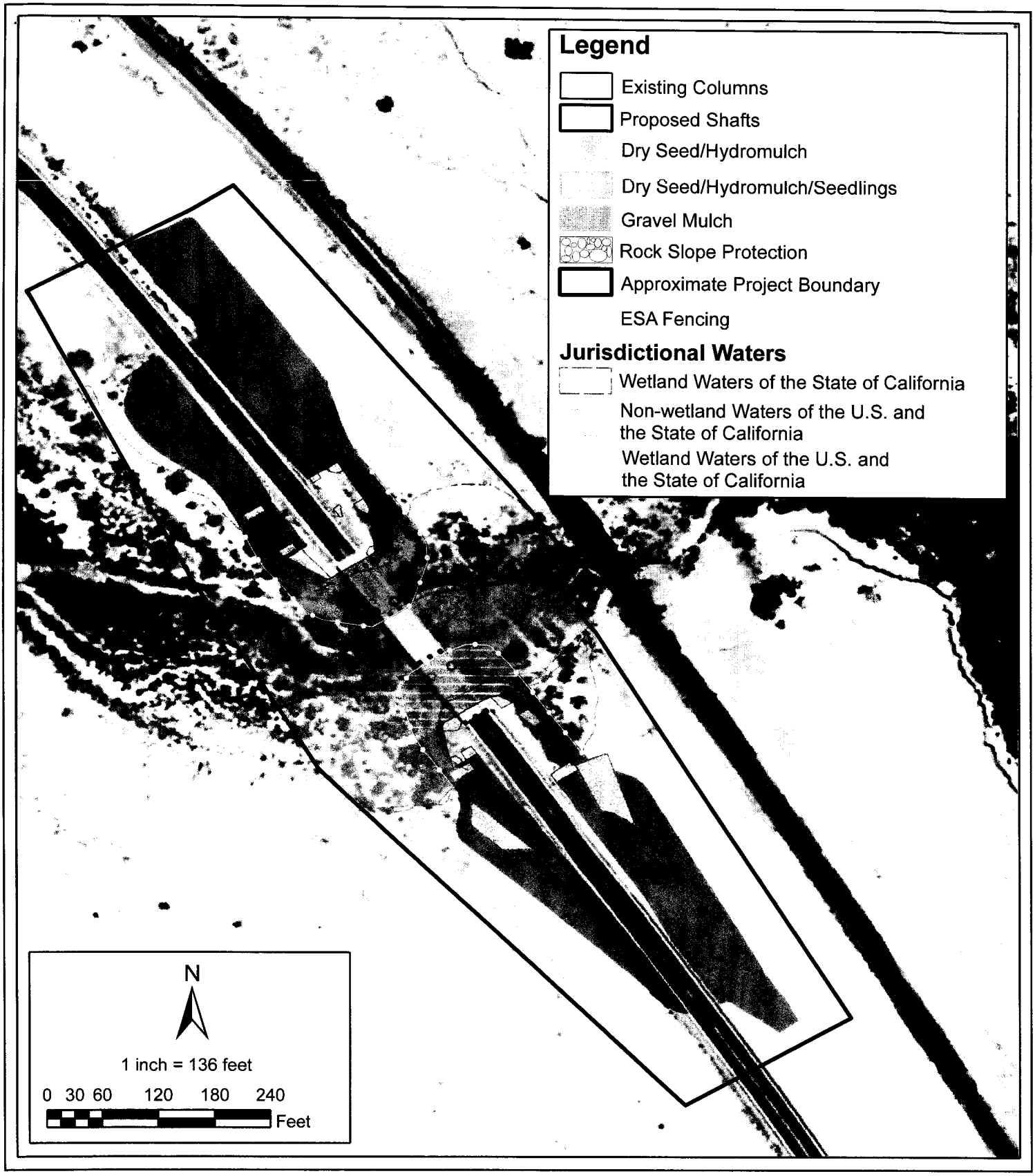
I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of said permit.

_____ _____
Signature of Permittee Date

Upon completion of the activity authorized by this permit, sign this certification and return it using any ONE of the following three (3) methods:

(1) E-MAIL a statement including all the above information to: Veronica.C.Chan@usace.army.mil
OR
(2) FAX this certification, after signing, to: 213-452-4196
OR
(3) MAIL to the following address:

U.S. Army Corps of Engineers
Regulatory Division
ATTN: CESPL-RG-SPL-2012-00528-VCC
P.O. Box 532711
Los Angeles, CA 90017-3401



Proposed Work
Salt Creek Bridge
California Department of Transportation

FIGURE

3

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	RIV	111	1.51		

Jonathan Szabo — 2-15-13
REGISTERED CIVIL ENGINEER — DATE

REGISTERED PROFESSIONAL ENGINEER — JONATHAN SZABO — No. C70563 — Exp. 9-30-13 — CIVIL — STATE OF CALIFORNIA

PLANS APPROVAL DATE

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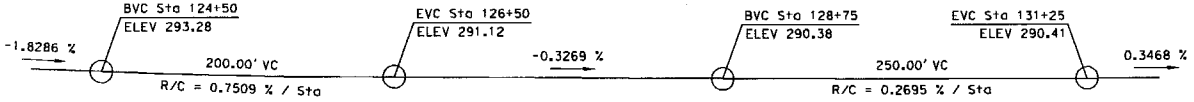
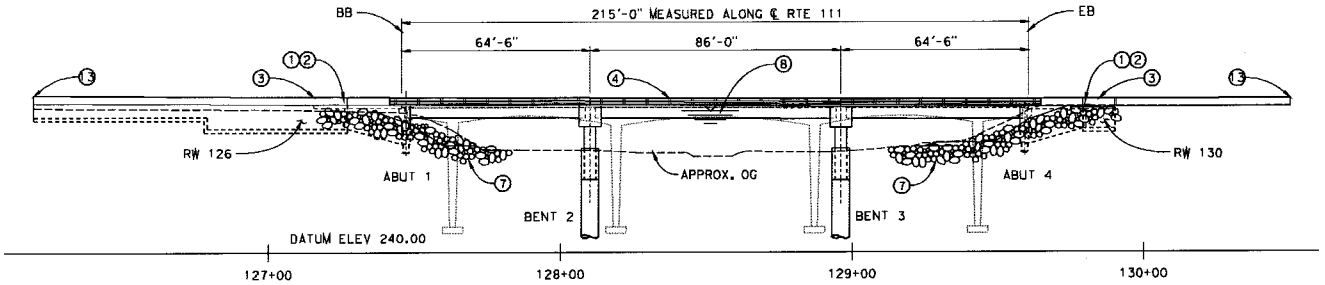


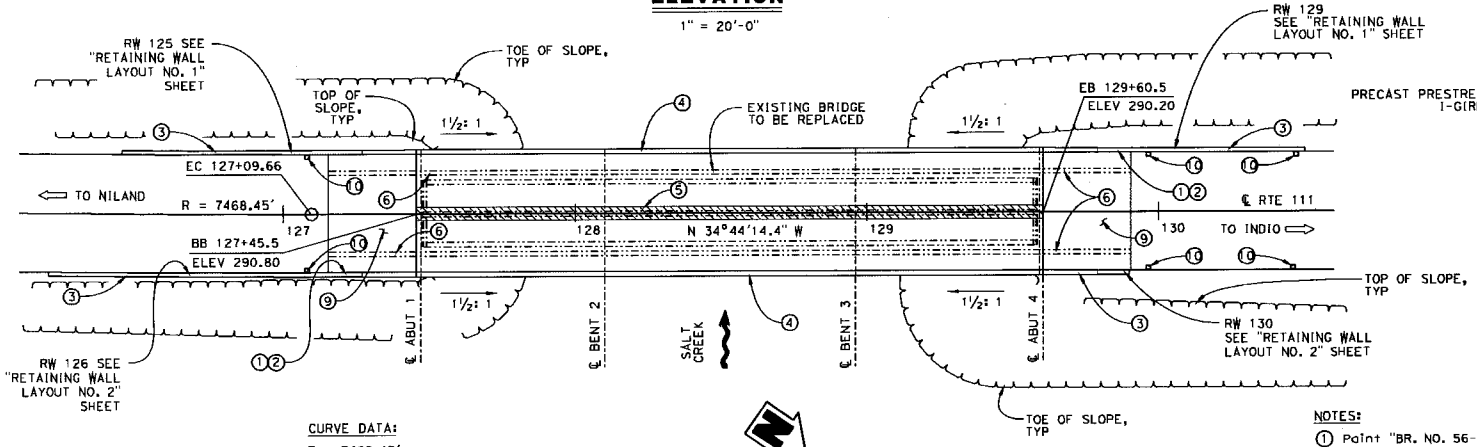
PROFILE

No Scale



ELEVATION

1" = 20'-0"

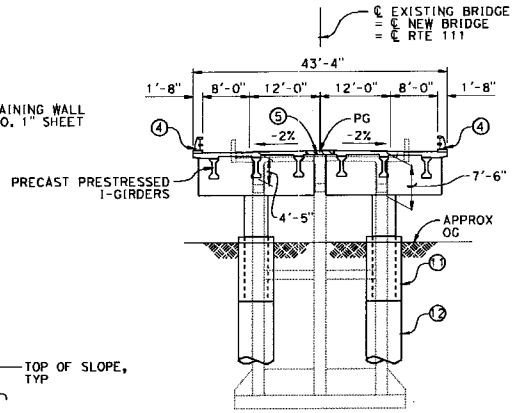


CURVE DATA:
R = 7468.45'
Δ = 6°20'41"
T = 413.93'
L = 827.02'

PLAN

1" = 20'-0"

Note: for General Notes, Index to Plans, Pile Data Table, see "INDEX TO PLANS" sheet



TYPICAL SECTION

1" = 10'-0"

LEGEND:

- Indicates closure pour
- Indicates new construction
- Indicates existing structure
- Indicates existing bridge in elevation and section views

NOTES:

1. Paint "BR. NO. 56-0854"
2. Paint "SALT CREEK BRIDGE"
3. Conc Barrier, Type 732A(MOD) (for modified portion of standard concrete barrier, see "ABUTMENT DETAL NO. 4" sheet)
4. Bridge Rail, Type ST-10
5. Closure Pour
6. Remove existing MBGR, see "ROADWAY PLANS"
7. Rock Slope Protection, see "ROADWAY PLANS"
8. For Hydrologic Summary, see "FOUNDATION PLANS"
9. Approach Slab, Type N(30D)
10. Drainage Inlet, see "ROADWAY PLANS"
11. Isolation Casing
12. 6'-0" ø CIDH Concrete Shaft
13. MBGR continuing from end of Conc. Barrier not shown, see "ROADWAY PLANS"

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DANIEL T. ADAMS — DESIGN ENGINEER	DESIGN	BY J. Szabo	CHECKED L. Wu	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/ LOW-BOY PERMIT DESIGN VEHICLE	STATE OF CALIFORNIA — DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES — STRUCTURE DESIGN — DESIGN BRANCH 10	BRIDGE NO. 56-0854	SALT CREEK BRIDGE (REPLACE)
	DETAILS	BY D. Wooten/ J. Szabo	CHECKED J. Szabo	LAYOUT	BY D. Wooten/ J. Szabo	CHECKED J. Szabo		POST MILE 1.51	GENERAL PLAN
	QUANTITIES	BY J. Szabo	CHECKED A. McPhee/W. Yo	SPECIFICATIONS	BY W. Pan	PLANS AND SPECS COMPLIANCE J. Szabo			

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS: 0 1 2 3

UNIT: 3589 — PROJECT NUMBER & PHASE: 0800000714 — CONTRACT NO.:08-449101

DISREGARD PRINTS BEARING EARLIER REVISION DATES — REVISION DATES

SHEET	OF
1	27

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.08-01-10)

FILE => 560854ggp01.dgn

USERNAME => b115354 DATE PLOTTED => 19-FEB-2013 TIME PLOTTED => 11:26

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	RIV	111	1.51		

Jonathan Szabo 2-15-13
REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER — JONATHAN SZABO — No. C78563 — Exp. 9-30-13 — CIVIL — STATE OF CALIFORNIA

PLANS APPROVAL DATE

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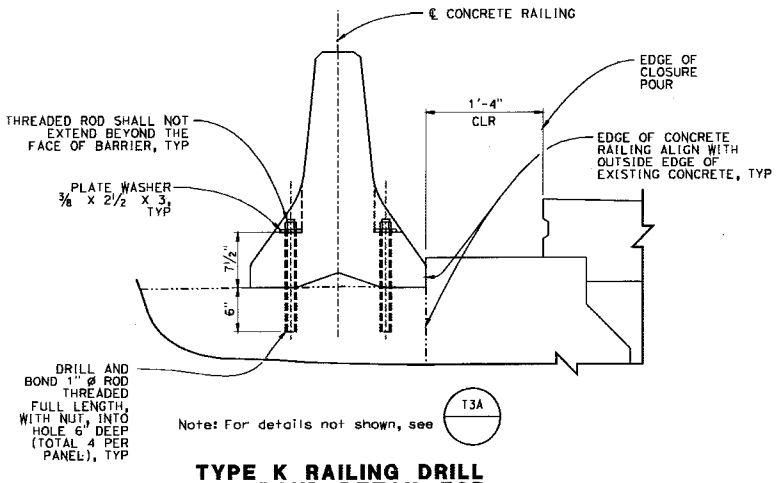
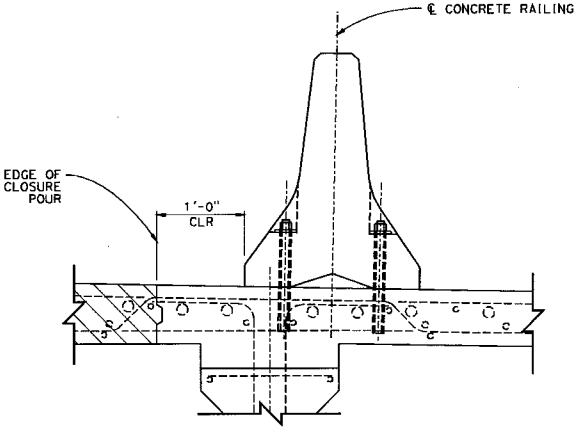


TYPE K RAILING DRILL AND BOND DETAIL FOR STAGE 1 CONSTRUCTION

1-½" = 1'-0"



Note: for details not shown, see "TYPE K RAILING DRILL AND BOND DETAIL FOR STAGE 1 CONSTRUCTION"

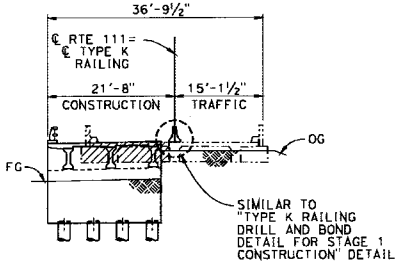
TYPE K RAILING DRILL AND BOND DETAIL FOR STAGE 2 CONSTRUCTION

1-½" = 1'-0"

LEGEND:

- Indicates bridge removal
- Indicates closure pour
- Indicates new construction
- Indicates existing structure

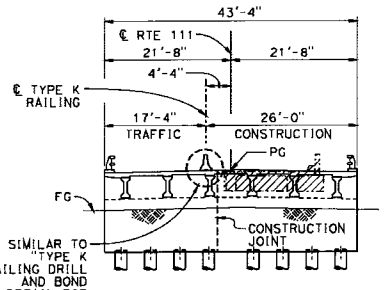
NOTE: For location and quantities of Type K Railing segments and quantities of drill and bond bolts, see "ROADWAY PLANS"



Note: Abutment 1 shown, Abutment 4 similar

ABUTMENT 1 ELEVATION AT STAGE 1 CONSTRUCTION

1" = 10'-0"



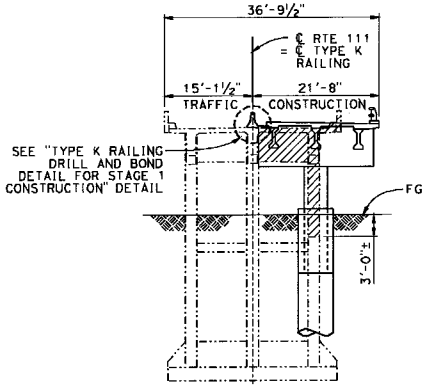
Note: Abutment 1 shown, Abutment 4 similar

ABUTMENT 1 ELEVATION AT STAGE 2 CONSTRUCTION

1" = 10'-0"

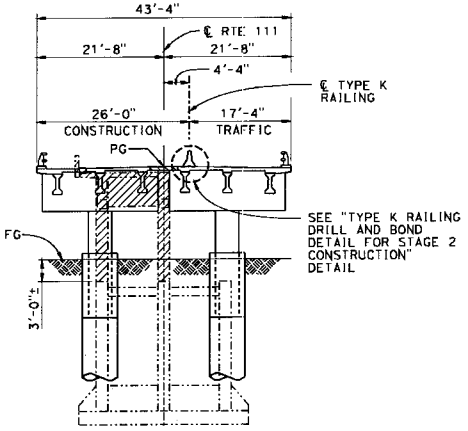
Note: Abutment Elevations shown facing BB, Bent Elevations shown facing EB

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.



BENT ELEVATION AT STAGE 1 CONSTRUCTION

1" = 10'-0"



BENT ELEVATION AT STAGE 2 CONSTRUCTION

1" = 10'-0"

DESIGN	BY J. Szabo	CHECKED L. Wu	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 10	BRIDGE NO. 56-0854 POST MILE 1.51
DETAILS	BY D. Wooten/J. Szabo	CHECKED J. Szabo			
QUANTITIES	BY J. Szabo	CHECKED A. McPhee/N. Yo			

SALT CREEK BRIDGE (REPLACE)
STAGE CONSTRUCTION DETAILS

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

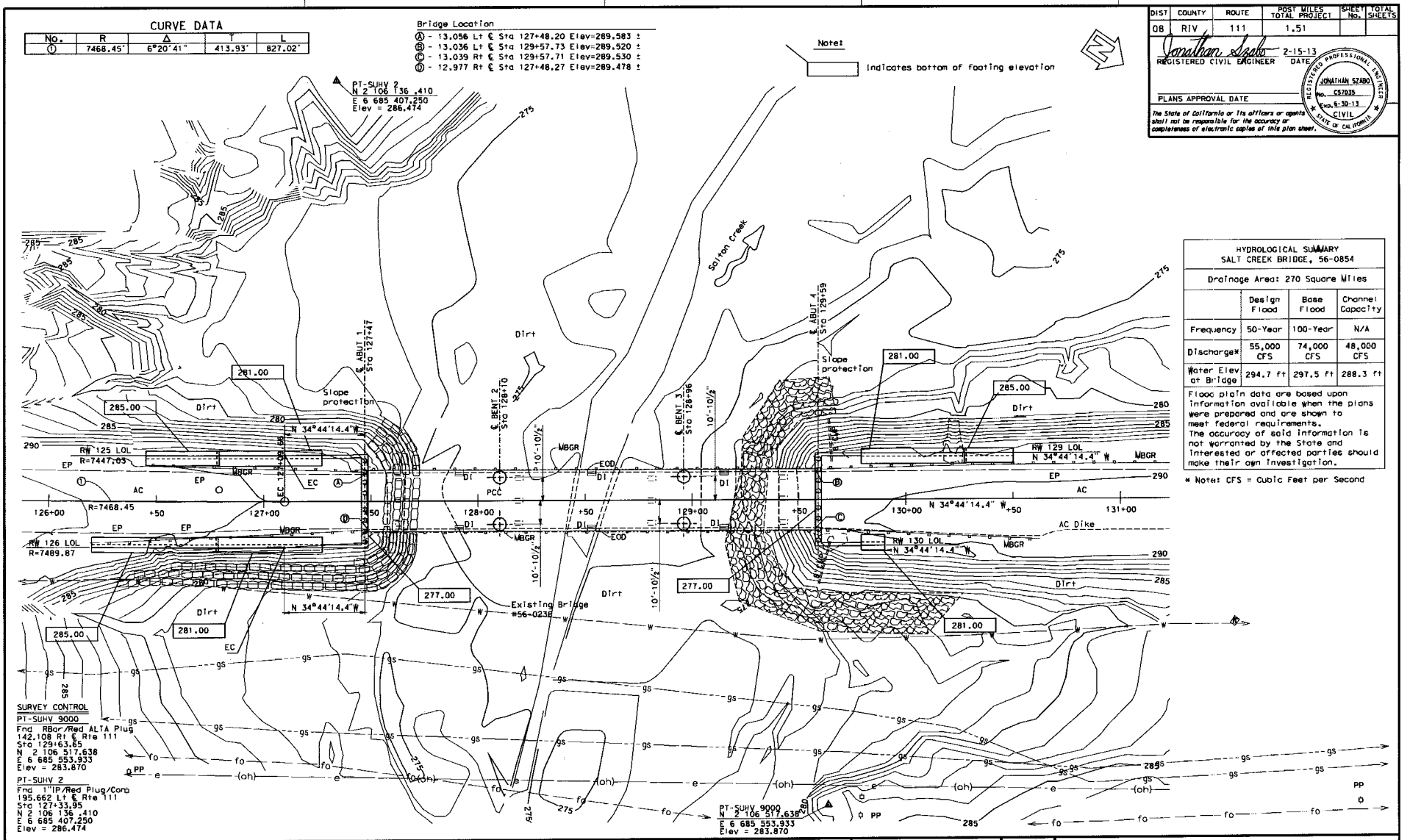
UNIT: 3589 PROJECT NUMBER & PHASE: 0800000714 CONTRACT NO.: 08-449101

DISREGARD PRINTS BEARING EARLIER REVISION DATES: →

REVISION DATES				SHEET	OF
8-24-12	11-28-12	1-28-13	2-14-13	3	27

FILE => 560854csondt03.dgn

USERNAME => s15354 DATE PLOTTED => 19-FEB-2013 TIME PLOTTED => 11:27



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	RIV	111	1.51		

Jonathan Szabo 2-15-13
REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER
JONATHAN SZABO
No. C57035
Exp. 6-30-13
CIVIL
STATE OF CALIFORNIA

PLANS APPROVAL DATE

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HYDROLOGICAL SUMMARY
SALT CREEK BRIDGE, 56-0854

Drainage Area: 270 Square Miles

	Design Flood	Base Flood	Channel Capacity
Frequency	50-Year	100-Year	N/A
Discharge*	55,000 CFS	74,000 CFS	48,000 CFS
Water Elev. at Bridge	294.7 ft	297.5 ft	288.3 ft

Flood plain data are based upon information available when the plans were prepared and are shown to meet federal requirements.
The accuracy of said information is not warranted by the State and interested or affected parties should make their own investigation.

* Note: CFS = Cubic Feet per Second

PRELIMINARY INVESTIGATION SECTION

SCALE 1"=20'	VERT.DATUM NGVD 29	PHOTOGRAMMETRY AS OF: X			
HORZ.DATUM NAD 83	SURVEYED	BY District	CHECKED	BY C. Stewart	
ALIGNMENT TIES Dist. Traverse Sheet	DRAFTED	BY W. Sodaghiani 5-12	CHECKED	BY E. Vigier 5-12	

DESIGN	BY J.Szabo	CHECKED	L.Wu
DETAILS	BY D.Wooten / J. Szabo	CHECKED	J.Szabo
QUANTITIES	BY J.Szabo	CHECKED	A.McPhee/W.Yo

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN
DESIGN BRANCH 10

BRIDGE NO.	56-0854
POST MILE	1.51-1.54

SALT CREEK BRIDGE (REPLACE)
FOUNDATION PLAN

STRUCTURES FOUNDATION PLAN SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3647
PROJECT NUMBER & PHASE: 0800000714
CONTRACT NO.: 08-449101

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES			SHEET	OF
5/31/13			5	27

FILE => 560854efdpl05.dgn

NOTES:
1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.
2. GRAVEL MULCH AND EROSION CONTROL (TYPE 1) IS FOR DISTURBED SOIL AREAS FROM CONTRACTORS OPERATIONS.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv	111	1.1/1.9		

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

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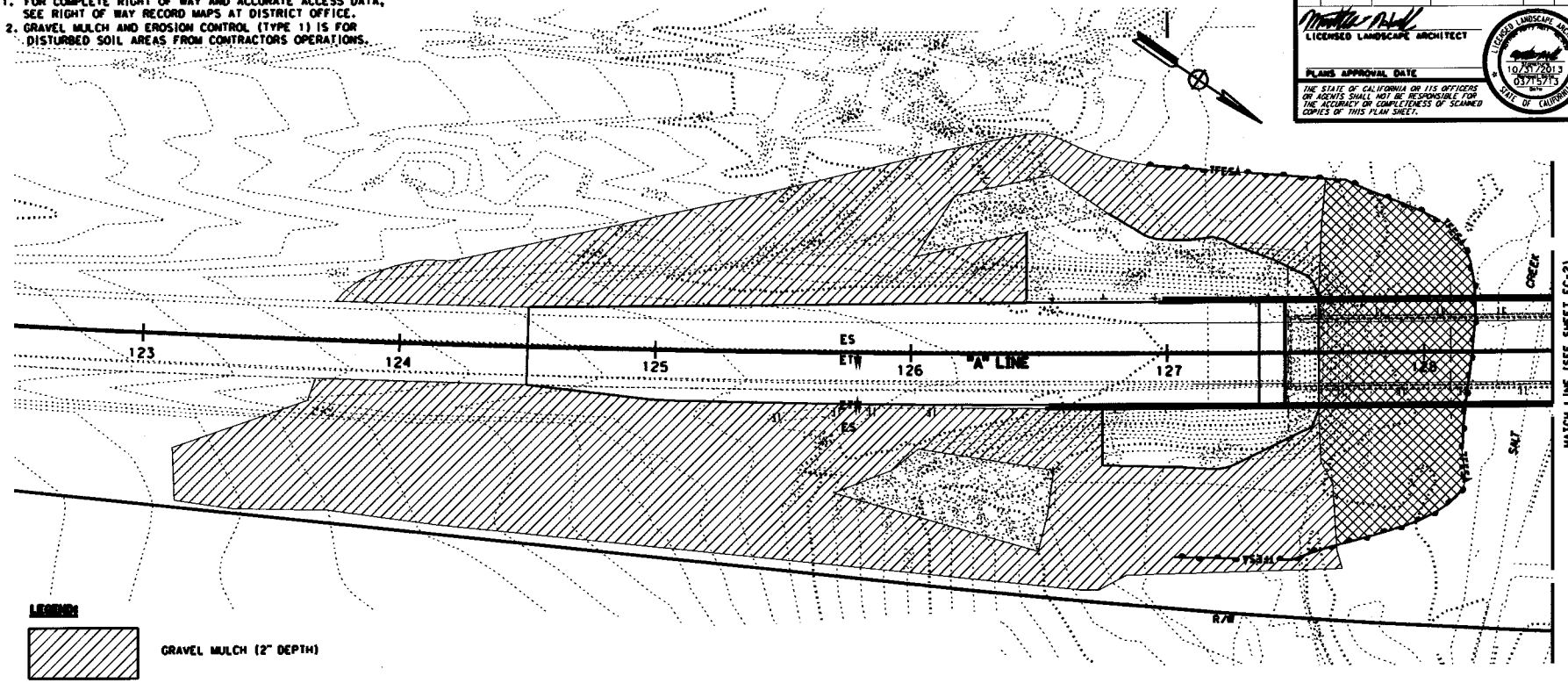
LICENSED LANDSCAPE ARCHITECT — REGISTERED PROFESSIONAL ENGINEER — 10/31/2013 — 03715713 — STATE OF CALIFORNIA



LEGEND:

GRAVEL MULCH (2" DEPTH)

EROSION CONTROL (TYPE 1)

EROSION CONTROL (TYPE 1)

SEQUENCE	ITEM	MATERIAL		APPLICATION RATE
		DESCRIPTION	TYPE	
STEP 1	DRY SEED	DRY APPLIED SEED	SEED MIX	4 LB/ACRE
STEP 2	HYDROMULCH	BFM FIBER	WOOD	3,500 LB/ACRE
		BFM TACKIFIER	PLANT BASED	

SEED MIX

BOTANICAL NAME (COMMON NAME)	PERCENT GERMINATION (MINIMUM)	PURE LIVE SEED (POUNDS PER ACRE)
ALLENROLFEA OCCIDENTALIS (IODINE BUSH)	50	1
DISTICHLIS SPICATA (SALTGRASS)	40	3
	TOTAL	4

EROSION CONTROL PLAN

SCALE: 1"=20' EC-1

REVISED BY | DATE REVISED

LORENA SALVADOR | MATTHEW HALL

CALCULATED-DESIGNED BY | CHECKED BY

SENIOR LANDSCAPE ARCHITECT | RAY DESSELLE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
LANDSCAPE ARCHITECTURE

DATE PLOTTED => 15-MAR-2013
TIME PLOTTED => 14:23

03-12-13

BORDER LAST REVISED 7/2/2010

USERNAME => s102458
DGN FILE => 08000000714ga001.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 2271

PROJECT NUMBER & PHASE 08000000631

Dist	County	Route	Post Miles Total Project	Sheet No.	Total Sheets
08	Riv	111	1.1/1.9		

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE

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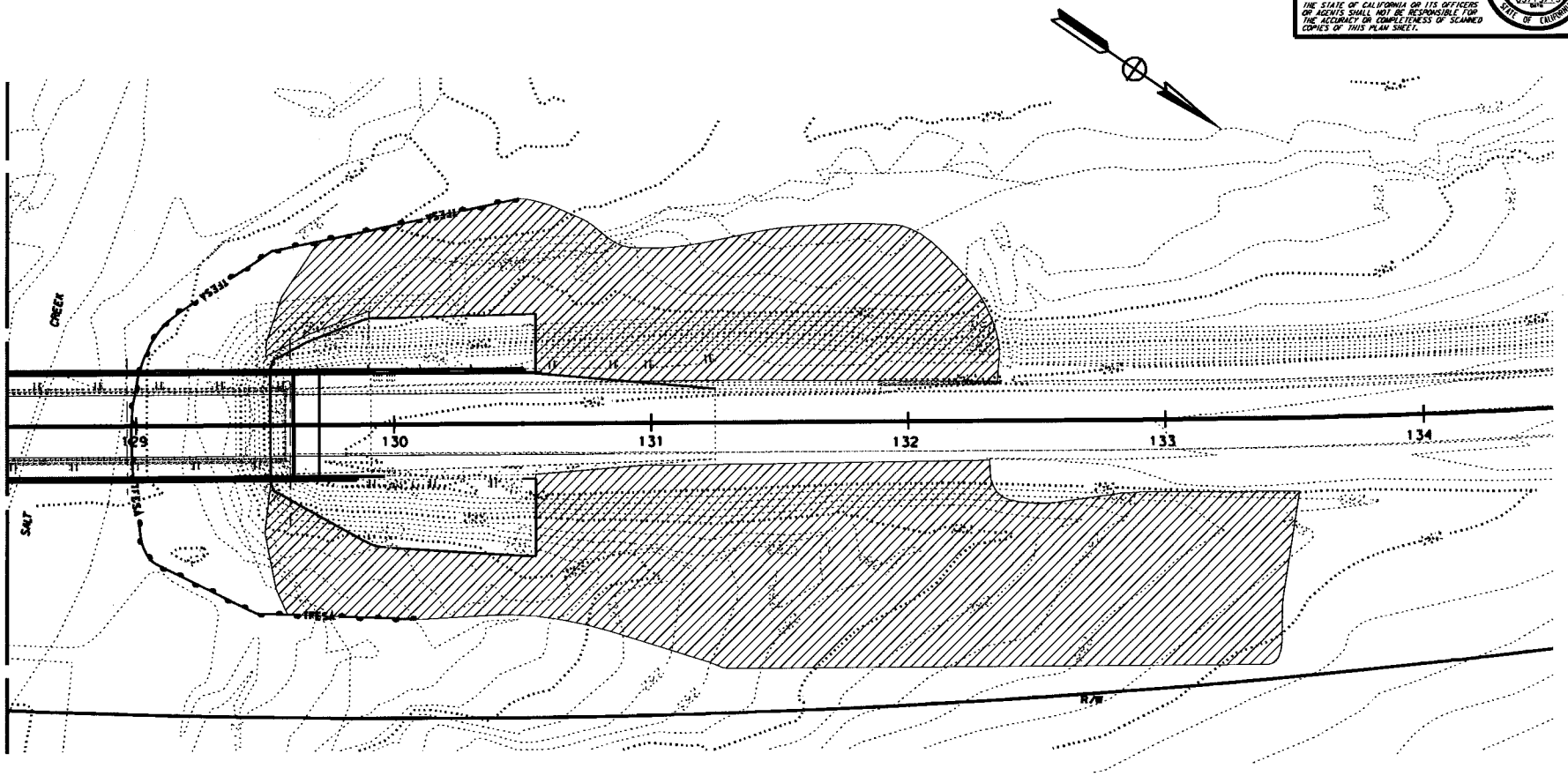
LICENSED LANDSCAPE ARCHITECT — 10/31/2013 — 03715 — STATE OF CALIFORNIA

NOTE:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



QUANTITIES

SHEETS	DRY SEED	HYDROMULCH	GRAVEL MULCH
	SQFT	SQFT	SQFT
EC-1	5,907	5,907	34,991
EC-2	7,131	7,131	37,331
TOTAL	13,038	13,038	72,322

EROSION CONTROL PLAN

SCALE: 1"=20'

EC-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	SENIOR LANDSCAPE ARCHITECT	CALCULATED-DESIGNED BY	LORENA SALVADOR	REVISED BY	
LANDSCAPE ARCHITECTURE	RAY DESSELLE	CHECKED BY	MATTHEW HALL	DATE REVISED	

LAST REVISION — DATE PLOTTED => 15-MAR-2013 — TIME PLOTTED => 14:23 — 03-12-13

BORDER LAST REVISED 7/2/2010 | USERNAME => s102458 | DGN FILE => 0800000714ge002.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 2271 | PROJECT NUMBER & PHASE 08000000631

FOR COMPLETE RIGHT OF WAY, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

Dist	County	Route	Post Miles Total Project	Sheet No.	Total Sheets
08	Riv	111	1.5		

03/15/13
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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JIAN LAN C63981 09/30/14 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

UTILITIES:
- 18" WATERLINE
- REFINED PETROLEUM PRODUCT LINE
- FIBER OPTIC CABLE

54.42', +77.41' Conc RSP
47.55' Lt, +45 Conc RSP
+45 Conc RSP
18" AP
GT. DI
AFES
TFESA
TOE OF RSP TRENCH FTG
SEE DRAINAGE DETAILS
ES
ETW
"A" LINE
ABANDONED WATER LINE
R/W
SEE DRAINAGE DETAILS
Conc RSP
GI DI
18" AP
AFES
MATCH LINE (SEE SHEET D-2)
123 124 125 126 127 128

NOTES:
1. THE CONTOUR GRADING SHOWN IS BEFORE PLACING RSP.
2. THE CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES AT ESA AREA. ESA FENCES SHOWN ARE FOR INFO ONLY. ESA FENCE SHALL BE PLACED AT DIFFERENT Const STAGES PER RESIDENT ENGINEER'S INSTRUCTIONS.
3. THE CONTRACTOR SHALL LIMIT DISTURBULANCE TO THE AREA WITHIN FEDERAL AND STATE NON-WETLAND WATERS.
4. SEE DRAINAGE DETAIL SHEET FOR RSP DETAILS.
5. RSP 3' AROUND THE DRAINAGE PIPE SHALL BE PLACED BY METHOD A, THE OTHER AREA SHALL BE PLACED BY METHOD B.

LEGEND:
- (No.) DRAINAGE SYSTEM NUMBER
- (#) DRAINAGE ITEM
- ROCK SLOPE PROTECTION
- ENVIRONMENTALLY SENSITIVE AREA (ESA)
- FEDERAL AND STATE WETLAND WATERS LIMIT
- FEDERAL NON-WETLAND LAND WATERS
- STATE NON-WETLAND WATERS
- TFESA - Temp FENCE (TYPE ESA)

ABBREVIATIONS:
Conc RSP - CONCRETED RSP (LIGHT CLASS)

DRAINAGE PLAN

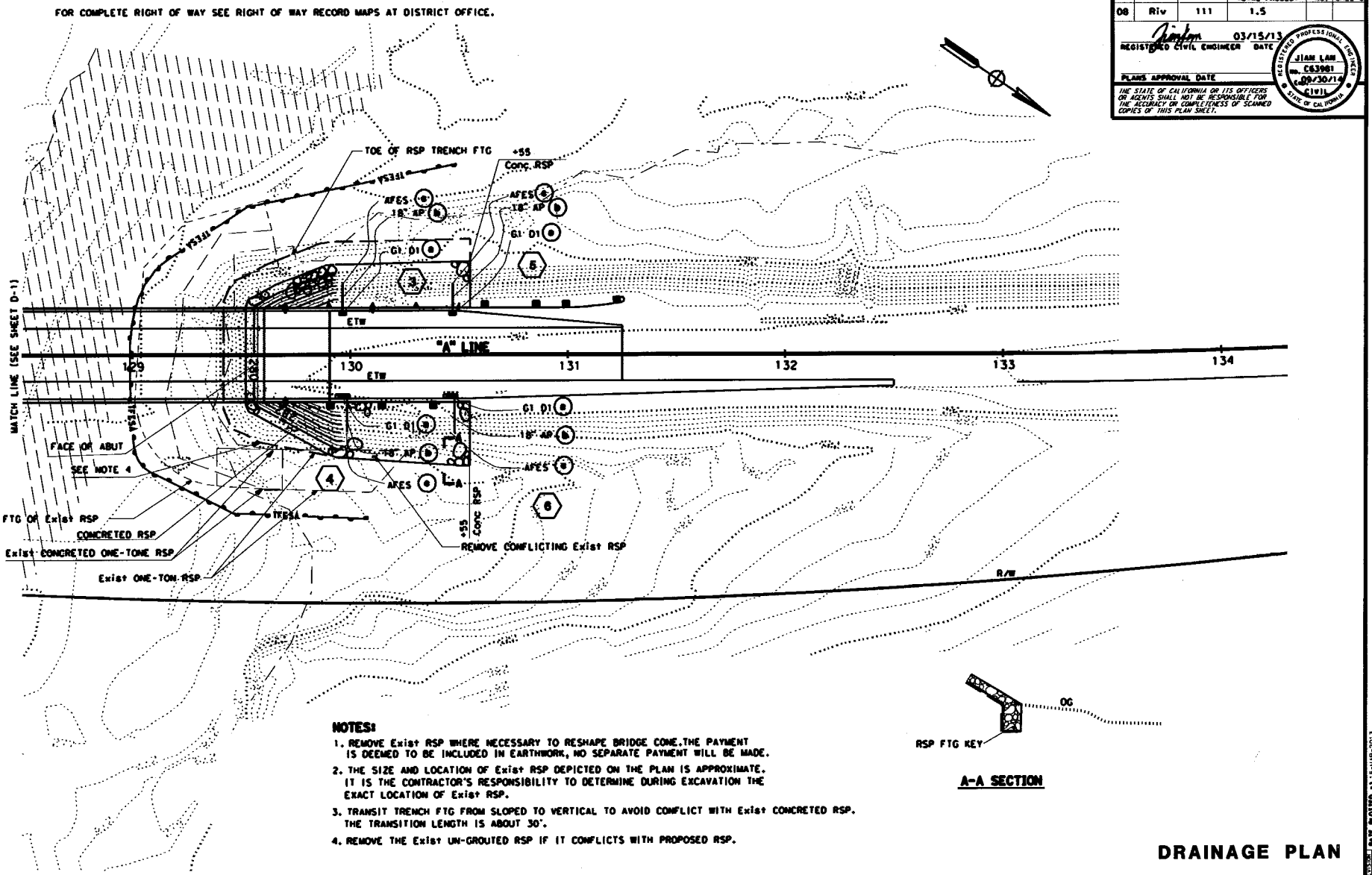
SCALE: 1"=20' D-1

THIS PLAN ACCURATE FOR DRAINAGE WORK ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
DESIGN C
FUNCTIONAL SUPERVISOR: GEORGE MORNIG
CALCULATED-DESIGNED BY: JIAN LAN(S) LAM
CHECKED BY: GEORGE MORNIG
REVISED BY / DATE REVISED

BORDER LAST REVISED 7/2/2010
USERNAME => a102458
DGN FILE => 08000007141a001.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 2231
PROJECT NUMBER & PHASE 08000007141

DATE PLOTTED => 15-MAR-2013
TIME PLOTTED => 14:23
03-12-13



NOTES:

1. REMOVE Exist RSP WHERE NECESSARY TO RESHAPE BRIDGE CONE. THE PAYMENT IS DEEMED TO BE INCLUDED IN EARTHWORK, NO SEPARATE PAYMENT WILL BE MADE.
2. THE SIZE AND LOCATION OF Exist RSP DEPICTED ON THE PLAN IS APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE DURING EXCAVATION THE EXACT LOCATION OF Exist RSP.
3. TRANSIT TRENCH FTG FROM SLOPED TO VERTICAL TO AVOID CONFLICT WITH Exist CONCRETED RSP. THE TRANSITION LENGTH IS ABOUT 30'.
4. REMOVE THE Exist UN-GROUTED RSP IF IT CONFLICTS WITH PROPOSED RSP.

DRAINAGE PLAN

SCALE: 1"=20' D-2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Riv	111	1.5		

03/15/13
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

JIAM LAM No. C63981 09/30/14 Civil STATE OF CALIFORNIA

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

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
DESIGN C
FUNCTIONAL SUPERVISOR: GEORGE MORNIG
CALCULATED-DESIGNED BY: JIAM (JAMES) LAM
CHECKED BY: GEORGE MORNIG
REVISED BY
DATE REVISED

BORDER LAST REVISED 7/2/2010

USERNAME => a102458
DGN FILE => 08000007141a002.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 2231

PROJECT NUMBER & PHASE 08000007141

DATE PLOTTED => 15-MAR-2013
TIME PLOTTED => 14:23
DATE REVISED 03-12-13

IH

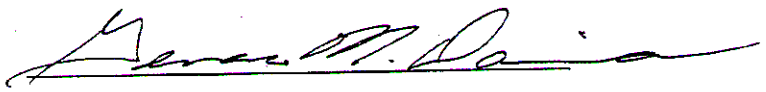
State of California – Department of Transportation
Division of Engineering Services
Structure Design Services

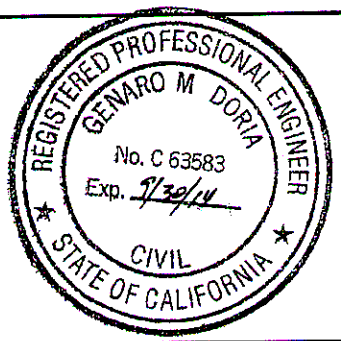
FINAL HYDRAULIC REPORT

Salt Creek Bridge

Bridge No. 56-0854
08 - Riv – 111 – PM 1.40
Contract No. 08-449101
Project No. 0800000714

Prepared by:





Genaro M. Doria, PE
Structure Hydraulics and Hydrology
August 17, 2012

General:

It is proposed to replace the existing Salton Creek Bridge Number 56-0236, with a new structure. The existing Salton Creek Bridge will be renamed Salt Creek Bridge with a new bridge number 56-0854. The project is located at post mile 1.40 on State Route 111 in Riverside County, southeast of the City of Mecca. The existing structure does not meet current design standards to improve traffic operations and will be replaced for this reason. The current alignment will be used for the replacement structure. The width of the existing structure will be increased from 28'-11" to 43'-4". The proposed 3-span precast I-Girder structure is to have structural depth of 4'-5". The columns below grade will be 6'-0" in diameter with isolation casings. The columns above grade will be 4'-0" in diameter. The abutments will be founded on 16 to 24 inch diameter piles, the diameter depends on Structure Foundation recommendations. The substructure elements will have no roadway skew and the hydraulic skew will be negligible at higher flows. The new bridge will have equal end span lengths of 64'-6" and a center span length of 86'-0", with an overall structure length of 215'-0".

All elevations given are referenced to the data provided by Structures Design and Preliminary Investigations-South, using the NGVD 29 Vertical Datum except as noted.

Basin:

The Salt Creek basin, situated on the eastern side of the Salton Sea, covers about 270 mi^2 at the bridge site. Salt Creek is a perennial stream supplied by the three mountain ranges, seepage from the Coachella Canal, groundwater and the occasional rainfall event. Annual average precipitation ranges from 5 to 7 inches. The existing bridge and an existing gage station are approximately 0.3 miles from the Salton Sea. The gage station number is USGS No. 10254050. The mountain ranges that supply Salt Creek flows are the Orocopia Mountains, Chuckwalla Mountains and Chocolate Mountains. The basin elevations range from about 230 feet below sea level at the Salton Sea to about 4500 feet in the Chuckwalla Mountains. These mountain ranges are not heavily vegetated and do feed the water into an alluvial fan. The Coachella Valley Water District (CVWD) maintains the Coachella Canal which transverses the watershed. The CVWD diverts the water and sediment through eight locations over the Coachella Canal. From an alluvial fan and through these eight different locations the Salt Creek begins to form. Over the years, Salt Creek has become moderately vegetated (phreatophyte vegetation) and environmentally sensitive due to the vegetation, wildlife and specifically the Pup Fish that migrate upstream from the Salton Sea. The northeast portion of the basin is transversed by the San Andreas fault zone.

Streambed:

The natural channel bed material consists of mostly alluvium ranging from medium cobbles, coarse sand to silty sand with smaller amounts of fine-grained material interspersed. This material is considered to be scourable. At the bridge site, the slope is fairly flat to mild with a gradient of approximately 0.004 ft/ft. The potential for channel migration and degradation exists and are considered in the recommendations made in this report.

Discharge:

Previous Caltrans studies have modeled Salt Creek discharges at much lower rates. Improved and updated methods utilizing stream gage data and a HEC-1 model developed by Ronald Mcgaugh of Caltrans Structure Hydraulics show higher flood flows. The model was cross checked by Diane O'Brien of Caltrans Structure Hydraulics and Roy King from District 8 Hydraulics. Based on the HEC-1 model, the 50-year and 100-year discharge rates for Salt Creek are 55,000 cfs and 74,000 cfs, respectively. The channel hydraulics were modeled using the Army Corps of Engineers HEC-RAS modeling program, version 4.1.0, utilizing survey data provided by Caltrans Preliminary Investigations. The surveys provided are limited to the bridge site only and do not cover the necessary area to represent proper results. A channel capacity discharge of 48,000 cfs was calculated. The channel capacity was calculated with no structure in place. With a structure in place the waterway area and an elevation of 285.0 feet for bottom of soffit approximately allows 31,000 cfs discharge to flow under the structure without incident.

Hydraulic Analysis:

HEC-RAS was used to determine the water surface elevations and velocities for the project reach. A manning's roughness coefficient of 0.035 was estimated throughout the job site using photos gathered during surveys.

For the 50-year and 100-year event, the proposed 3-span structure has a modeled "Water Surface Elevation" of 294.7 feet and 297.5 feet, respectively. Both existing and proposed structures will be overtopped during a 50-year event or better. The proposed new soffit elevation is 285.0 feet. The new soffit elevation is much lower than the existing channel capacity of 288.3 feet and the 50-year and 100-year flood elevations.

For the 100-year flows the average velocity at the upstream side of the proposed structure was calculated at approximately 13.0 feet per second. Downstream of the structures, the average channel velocity ranged from 19.0 feet per second to 22.0 feet per second.

Scour Analysis:

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

Based on a comparison of historical channel cross-sections taken at the existing Route 111 structure, the channel has aggraded approximately 11 feet between 1941 and 2011. The channel invert seems to have stabilized due to no rainfall activity in the last several years. Channel degradation is considered in the scour numbers. Channel degradation could go unnoticed during a flash flood event, the channel degrades very suddenly and replenishes itself before an inspection could observe the phenomenon. Another reason to consider a channel degradation value is the Salton Sea unknowns. The Salton Sea has several issues, one being the evaporation rate which is lowering the lake level. If the Salton Sea water surface elevation drops down enough headcut may travel upstream to the new bridge. Therefore, an estimated 10 feet channel degradation value is added.

Local pier scour elevations are based off the existing channel invert elevation of 272.0 feet. The local pier scour with degradation for the 6-foot diameter columns is anticipated at 25 feet, to an elevation of 247 feet.

Abutment Scour was calculated using the Hydraulic Design function within HEC-RAS. The potential abutment scour is 20 feet or elevation 263 feet. This elevation is determined from the approximate top of abutment slope elevation 283 feet minus the potential abutment scour. Structure Foundations and Geology will need to be consulted on the design of the abutment foundations.

Drift:

Historical records do not indicate a major problem with drift.

Bank Protection:

District Design will be responsible for bank protection. District should maintain the protection to ensure bank stability.

Summary & Recommendations:

Structure Hydraulics recommends that an open bridge rail be used to help reduce any backwater affects, the abutments and roadway fill be protected against scour and the bent columns be round to eliminate hydraulic skew and reduce local pier scour depths. Structure Hydraulics also recommends that the proposed precast I-Girders be continuous and tied down to prevent the potential overtopping from moving the new structure.

Below is a summary of key design parameters based on the hydrology and hydraulic analysis performed for this structure.

Hydrologic Summary for Salt Creek Bridge, 56-0854			
Drainage Area: 270 mi^2			
Frequency	**Design Flood**	**Base Flood**	**Channel Capacity**
	50-year	100-year	N/A
Discharge	55,000 cfs	74,000 cfs	48,000 cfs
Water Surface Elevation at Bridge	294.7 ft	297.5 ft	288.3 ft

Flood plain data are based upon information available when the plans were prepared and are shown to meet federal requirements. The accuracy of said information is not warranted by the State and interested or affected parties should make their own investigation.

Minimum Soffit Elevation*	285.0 ft
Local Pier Scour Depth	25 ft
Scour Depth at Abutments	20 ft
Local Pier Scour Elevation	247 ft
Abutment Scour Elevation	263 ft

* Proposed Soffit Elevation since roadway profile will not be raised.

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

State of California IH Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. DAN ADAMS, CHIEF
Structure Design
Office of Bridge Design-South 2
Bridge Design Branch 10

Date: November 26, 2012

File: 08-Riv-111-PM 1.5
EA 08-449101
Proj. ID: 0800000714
Salton/Salt Ck Br. - Replace
Ex Br. #56-0236
Proposed Br. #56-0854

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 2 MS #5
Design Branch A

Subject: Foundation Report for Salton/Salt Creek Bridge Replacement

Pursuant to a request by the Office of Bridge Design South 2, Design (OBDS2) Branch 10, this report presents Foundation Recommendations for the proposed Salton Creek Bridge Replacement (Br. No. 56-0236), and supersedes all previously generated Preliminary Foundation Reports for this structure. The following foundation recommendations are based on subsurface information gathered during foundation investigations conducted in September 2012.

It should be noted that Vertical Datum and Horizontal Datum used in this report are Vertical Datum of NGVD 29 and Horizontal Datum of NAD 83 as surveyed by District staff and shown on Plans.

Project Description

It is proposed to replace the existing Salton Creek Bridge (Br. # 56-0236 built in 1940) with a new structure. The new bridge will be renamed Salt Creek Bridge with a new bridge number 56-0854. The project is located in Riverside County on State Route (SR) 111 at Post Mile 1.50.

The existing 5 span, 2 lane bridge will be replaced on its current alignment with a new 3 span, 2 lane bridge with wider shoulders, to meet current design standards. Additionally, the project will include four retaining walls (RWs # 125,126,129 and 130) to retain the widened section of the paved surface as well as the approach slabs. The bridge spans the Salton Creek which flows into the Salton Sea.

Geology

The "Geological map of California, Salton Sea Sheet, 1992", shows that the bridge is located on Holocene sediments and late Quaternary Lake Deposits. These deposits are composed of both cohesive and granular deposits consisting of clays, silts, and sands. These Holocene deposits

represent the recent alluvial deposits from the Salton Sea as well as those lacustrine deposits from its predecessor, Lake Cahuilla. These deposits are in turn underlain by poorly indurated siltstones and sandstones of the quaternary aged Borrego Formation.

No As-Built Log of Test Borings (LOTBs) exists or can be located for the bridge. A subsurface investigation was conducted at the bridge site in September 2012, which consisted of 4 mud rotary borings (R-12-001 through R-12-004). The LOTBs for the recent investigation will be submitted under separate cover once it has been completed.

Ground Water

During the subsurface geotechnical investigation in September, 2012, the highest groundwater was measured at elevation 275 feet. However, the groundwater elevation may fluctuate due to seasonal variation, and surface flowing in the creek.

Scour Potential

Caltrans Final Hydraulic Report dated August 17, 2012 indicates that the abutment and local bent/pier scour depths are estimated at 20 and 25 feet respectively (corresponding to elevations of 263 and 247 feet).

Corrosion

Corrosion test results for soil samples collected from boring R-12-002 are shown below in Table 1. Due to chloride content being greater than 500 ppm in two of the samples tested and sulfate content being greater than 2000 ppm in 1 of the samples, the site is considered to be corrosive based on current Caltrans' standards. Therefore, reinforced concrete (including piles) which is in contact with the native formational material, or fill material composed of the native formational material, requires corrosion mitigation in accordance with *Bridge Design Specifications, Article 8.22.*

Table 1 – Corrosion Test Summary

Location	Minimum Resistivity (Ohm-Cm)	pH	Chloride Content (ppm)	Sulfate Content (ppm)
Boring R-12-002 (Elev. 263-264.5 ft)	456	8.82	607	482
Boring R-12-002 (Elev. 254.5-258 ft)	345	8.16	784	2095
Boring R-12-002 (Elev. 248-249.5 ft)	449	8.48	326	577

Note: Caltrans currently defines a corrosive environment as an area where the soil has either a chloride concentration of 500 ppm or greater, a sulfate concentration of 2000 ppm or greater, or has a pH of 5.5 or less. With the exception of MSE walls, soil and water are not tested for chlorides and sulfates if the minimum resistivity is greater than 1,000 ohm-cm.

Seismicity

Ground motion recommendations are based on the Caltrans 2009 Seismic Design Procedure (SDP) as described in the Seismic Design Criteria Version 1.6 (SDC) Appendix B, the Acceleration Response Spectrum (ARS) Online Tool v1.0.4, USGS 2008 Interactive Deaggregations (Beta) and 2012 four Log of Test Borings (LOTB) drilled from September 18 through September 25, 2012. It must be noted that no As-Built Logs of Test Borings (LOTBs) were found for the existing bridge.

A map showing the location of the bridge and the controlling fault is attached. Based on the available 2012 subsurface geotechnical data for the proposed replacement, the average shear wave velocity for the upper 100 feet of subsurface materials is estimated as V_{S30} = 260 m/s using the shear wave velocity correlation with Standard Penetration Test (SPT).

Design Response Spectrum

Based on the 2009 SDP, the design response spectrum is the upper envelope of the deterministic and probabilistic response, but is not less than a minimum deterministic response spectrum resulting from a Mmax = 6.5 earthquake on a vertical strike-slip fault at a distance of 7.5 miles (12 km).

The deterministic response spectrum is obtained by taking the arithmetic average of the median response spectrum calculated using the 2008 Campbell-Bozorgnia and 2008 Chiou-Youngs ground motion prediction equations. The probabilistic response spectrum is obtained for 5 percent probability of exceedance in 50 years (corresponding to approximately a 975 year return period) using the 2008 USGS Seismic Hazard Map. Adjustments to account for site conditions and fault effects were implemented.

For this site the probabilistic response spectrum controls. The 2008 USGS Deaggregations (Beta) tool was utilized to calculate the 5% in 50 years probabilistic spectrum, because V_{s30} is 260 m/sec. (Caltrans 2009 SDP). The calculated spectrum was also adjusted for near field effect. The corresponding peak horizontal ground acceleration at proposed site is 0.9 g. The recommended acceleration response spectrum is attached.

Surface Fault Rupture Hazard

The main fault trace of the San Andreas Fault (Coachella section) is located approximately 200 m (650 feet) east of the bridge. There are no known traces between the bridge and that mapped trace. The main trace is known to be so because of numerous mapping and trenching investigations which have taken place at the fault at this latitude (see green circles below) because the site is the only "deep water" southern San Andreas site, located 70 m below the high shoreline.

In 2006, researchers Seitz and Williams extended trenches both east and west of the main trace to make certain the entire fault zone was exposed. They found that the entire fault zone is over 30 m wide straddling the mapped trace 200 m east of the bridge, and the major zone of displacement is confined to a zone 10 m wide at the surface and narrowing to 3 m at a depth of

5 m. Because the main trace is very well mapped at this latitude nearly 200 m to the east, rupture does not need to be further addressed at this bridge.

Liquefaction Potential Evaluation

Soil liquefaction is a phenomenon in which saturated loose to medium dense, predominantly granular soils lose most, if not all, of shear strength and stiffness due to the development of excess pore pressure when subjected to ground shaking. Effects of liquefaction on ground surface include foundation settlement and reduction in bearing capacity, sand boils, and ground settlement and lateral spreading.

The soil profile at each boring location was analyzed for liquefaction potential in accordance with the procedure suggested by Seed et al (1985) and modified by Youd et al (2001). Our analysis indicate that a loose to medium dense sandy layer varying from elevations 263 feet to 275 is prone to liquefaction.

Seismic settlement at the site due to strong ground motion is estimated based on the procedure suggested by Tokimatsu and Seed (1987) is about 1.5-2 inches.

Lateral Spread

It is anticipated that the lateral spread may occur at the project site due to earthquakes. The additional lateral force generated by the lateral spread should be considered in design.

Kinematic approach is used to estimate the lateral spreading forces in this report. Kinematic approach is a displacement-controlled method. It accounts directly for the interaction between the moving soil and the pile displacement and includes the available mobilized soil resistance since it accounts for the residual strength of liquefied soils. Computer programs LPILE v5 and GSTABLE were used during analyses.

The results of analyses show that to consider the effects of soil movements during earthquake, the lateral spreading force is about 34 kips should be applied on the top of each CIDH pile in abutments of this project.

p-y curves

The concept of the application of p-y curves in laterally loaded pile analysis is to replace the continuum of soil with a series of discrete soil spring mechanisms in which their behavior can be described with a set of p-y curves. The p-y curves depend on pile geometry, soil properties, and methods of loading.

As requested by the structure engineer, p-y curves were provided for bent and abutment locations for 72-inch and 24-inch CIDH piles, respectively. The digital output and the p-y curve graphs are attached in Appendix A of this report for reference. It should be noted that the top of those piles are around 10 feet below the existing ground surface.

As-Built Foundation Data

According to the Bridge inspection record dated 8/16/2011, the existing Salton Creek Bridge (built in 1940) is a 5 span RC haunched T-beam, with cantilever end spans on 3 RC column bents and diaphragm abutments, all supported on spread footings.

The As-Built General Plan for the 1939 construction of the bridge specify the bottom of the footing elevation as 284 and 247 feet for all abutments and bents, respectively.

Foundation Recommendations

The following recommendations are for the proposed replacement of Salt Creek Bridge (Br. #56-0854) as shown on the General Plan dated July 11, 2012. For all support locations, a deep foundation system using 24-inch CIDH piles (for abutments) and 72-inch CIDH (for bents) is recommended for support.

The geotechnical pile capacity will equal or exceed the required design loads presented in following tables. The specified pile tip elevations are listed in Tables 2 and 3 for the abutments and bents respectively.

The general foundation information and design loads were provided by structure designers. It was shown on Tables 4 and 5. If any information or design load differ from those described in the tables, our office should be notified and modifications of our recommendations may be necessary.

Table 2 - Foundation Recommendations for Abutments

Salt Creek Bridge (Replace) Bridge # 56-0854 Abutment Foundations Design Recommendations									
Support	**Pile CIDH (inch)**	**Cut-off Elevation (ft)**	**LRFD Service-I Limit State Load (kips) per Support**		**LRFD Service-I Limit State Total Load (kips) per Pile (Compression)**	**Required Nominal Resistance Per Pile (kips)**	**Design Pile Tip Elevations (ft)**	**Specified Pile Tip Elevation (ft)**	**Nominal Pile Driving Resistance Required (kips)**
			Total	**Permanent**					
Abut. 1	24	277.25	1150	820	150	300	217.25(a)	217.25	N/A
Abut. 4	24	277.25	1150	820	150	300	217.25(a)	217.25	N/A

Design tip elevations are controlled by: (a) Compression, (b) Tension (c) Settlement, (d) Lateral Load, respectively.

Table 3 - Foundation Recommendations for Bents

Salt Creek Bridge (Replace), Br # 56-0854 Pier Foundations Design Recommendations											
Support Location	Pile Type	Cut-off Elevation (ft)	Service-I Limit State Load per Support (kips)	Total Permissible Support Settlement (inches)	Required Factored Nominal Resistance (kips)				Design Tip Elevations (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance Required (kips)
					Strength Limit		Extreme Event				
					Comp. (φ=0.7)	Tension (φ=0.7)	Comp. (φ=1)	Lateral (φ=1)			
Bent 2	72-inch CIDH	264.9	1,000	1	1,360	0	1,000	310	174.9(*a-I*) 204.9 *(d)*	174.9	N/A
Bent 3	72-inch CIDH	264.6	1,000	1	1,360	0	1,000	310	174.6 (*a-I*) 204.6 *(d)*	174.6	N/A

Notes:

1) *Design tip elevations are controlled by: (a-I) Compression (Strength Limit), (b-I) Tension (Strength Limit), (a-II) Compression (Extreme Event), (b-II) Tension (Extreme Event), (c) Settlement, (d) Lateral Load*
2) *The specified tip elevation shall not be raised above the design tip elevations for tension, lateral, and tolerable settlement.*
3) *The nominal driving resistance required is equal to the nominal resistance needed to support the factored load plus driving resistance from the unsuitable penetrated soil layers (very soft, liquefiable, scourable, etc.), if any, which do not contribute to the design resistance.*

Table 4: General Foundation Information provided by OBDS2

Salt Creek (New), Br # 56-0854 Foundation Design Data Sheet								
Support No.	Design Method	Pile Type CIDH (inch)	Finished Grade Elevation (ft)	Cut-off Elevation (ft)	Pile Cap Size (ft)		Permissible Settlement under Service Load (in)*	Number of Piles per Support
					B	L		
Abut 1	WSD	24	287.06	277.25	3.0	43.33	1	8
Bent 2	LRFD	72	274.79	264.89	N/A	N/A	1	1
Bent 3	LRFD	72	274.47	264.62	N/A	N/A	1	1
Abut 4	WSD	24	288.05	277.25	3.0	43.33	1	8

Based on CALTRANS' current practice, the total permissible settlement is one inch for multi-span structures with continuous spans or multi-column bents, one inch for single span structures with diaphragm abutments, and two inches for single span structures with seat abutments. Different permissible settlement under service loads may be allowed if a structural analysis verifies that required level of serviceability is met.

Table 5: Design Loads provided by OBDS2

Salt Creek (New), Br # 56-0854 Foundation Design Loads													
	Service-I Limit State (kips)			Strength Limit State (Controlling Group, kips)				Extreme Event Limit State (Controlling Group, kips)					
	Total Load		Permanent Loads	Compression		Tension		Compression		Tension		Lateral	
Support No.	Per Support	Max. Per Pile	Per Support	Per Support	Max. Per Pile	Per Support	Max. Per Pile	Per Support	Max. Per Pile	Per Support	Max. Per Pile	Per Support	Max. Per Pile
Abut 01	1150	150	820	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	240	30
Bent 02	1000	1000	750	1360	1360	0	0	1000	1000	0	0	310	310
Bent 03	1000	1000	750	1360	1360	0	0	1000	1000	0	0	310	310
Abut 04	1150	150	820	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	240	30

Retaining Walls

Based on the provided plans and soil profiles, the foundations of the proposed retaining walls (RWs 125, 126, 129 and 130) are anticipated to be founded on existing/new artificial fill. The fill is considered an adequate bearing material for supporting the retaining wall foundations. Total and differential settlement under the service load is anticipated to be within tolerable limits.

As a result, the use of standard Caltrans Type 1A retaining wall supported on shallow foundations designed in accordance with Caltrans Standard Plans (2010), is suitable from a geotechnical standpoint. To minimize differential settlements, it is recommended to subexcavate down to one foot below the bottom of the proposed footing, and then to bring it back up to that elevation with structure backfill compacted to 95% relative compaction. The concrete for the proposed wall footing shall be placed neat against undisturbed structure backfill on the bottom of the footing excavation. Should the bottom of the footing excavation be disturbed, then the disturbed soil shall be compacted to 95% relative compaction prior to the placement of the concrete for the structure support footings.

However, it should be understood that liquefaction can occur at the site during earthquake. Since the liquefiable soil layers are below the retaining wall footings, the damage caused by liquefaction on these retaining walls should be expected: rotation of walls, differential settlement, excessive settlement, or/and loosing bearing capacity at wall footings, among others may happen.

General Notes:

1. The structural engineer shall show the pile data table with the specified pile tip elevations on the foundation plan.

2. Support locations are to be plotted on the Log of Test Borings, in plan view, as stated in "Memos to Designers" 4-2.

Construction Considerations

1. The CIDH piles, spread footings, and retaining walls should be constructed in accordance with current Caltrans Standard Specifications (Caltrans, 2010).

2. Groundwater was measured in September, 2012 varying from Ele. 263 feet to Ele. 275 feet. The actual groundwater elevation may be different during construction due to seasonal rainfall, surface runoff and other man-made conditions. However, considering the length of piles, contractors should be prepared to use a "Wet" construction method.

3. Please note that there are sedimentary rocks of different hardness (due to rock type, weathering and fracturing). The contractor can best determine the method of advancing the borings based on experience and subsurface conditions.

4. The bottoms of the drilled holes shall be free of slough, cavings or loose soil. All drilled holes are to be cleaned out and inspected prior to placement of reinforcing cage or the pouring of concrete. Drilled holes are to be re-inspected prior to concrete placement to determine if the wall of the drilled hole was disturbed during placement of the reinforcement cage, causing loose material to fall into the bottom of the hole. If loose material is detected at the bottom of the drilled holes, the contractor is to remove the reinforcement cage and re-clean the bottom of the hole by an approved method.

5. There is a potential for the soils to cave during the construction of the CIDH piles. The amount of caving the contractor will experience will be dependent upon the methods and means the contractor chooses to use to construct the CIDH piles. Slurry displacement and/or temporary casing may be necessary to control caving during construction. If the CIDH piles are to be constructed using slurry displacement methods, the slurry shall consist of mineral or synthetic slurry only. Water shall not be allowed to be used as slurry. All temporary casing is to be removed during concrete placement.

6. All retaining walls will be Standard Type 1A retaining walls as shown in the "Standard Plans (2010)" on Revised Standard Plan RSP sheet B3-3A.

7. At locations where newly-placed engineered fill is to be placed beneath the proposed retaining wall footings, the newly-placed fill is to be compacted to 95% relative compaction. The limits of 95% relative compaction of engineered fill are to conform to the limits specified for relative compaction of embankments under retaining wall footings without piles, as defined in section 19-5.03B of the Standard Specifications 2010.

8. All proposed retaining wall spread footings, which will be constructed on the embankment slope, are to be positioned such that they have a minimum horizontal footing embedment of 4 feet, measured from the top of footing to the face of the finished slope. The finished slope is not to exceed a 2:1 (horizontal to vertical) ratio.

The recommendations contained in this report are based on specific project information regarding design loads and structure locations that has been provided by Office of Bridge Design South 2, Branch 10. If any conceptual changes are made during final project design, the Office of Geotechnical Design South-2, should review those changes to determine if the foundation recommendations provided in this report are still applicable. Any questions regarding the above recommendations should be directed to attention of Farzad Qmehr (916) 227-4519 or Angel Perez-Cobo (916) 227-7167, Office of Geotechnical Design South-2.

Prepared by: Date: 11/26/2012

Farzad Qmehr
Transportation Engineer
Geotechnical Design-South 2
Design Branch A

Attachment: ARS Curve

cc: R.E. Pending File
Kelly Holden - Specs & Estimates
Rafih Achy – District 8 (Project Manager)
Bruce Kean – District 8 (Materials Engineer)
Abbas Abghari – OGDS-2
Angel Perez-Cobo – OGDS-2
Shira Rajendra – GS Corporate

Attachments:

Figure 1. Nearby Major Faults with Reference to the Project Site
Figure 2. Recommended Acceleration Response Spectrum (ARS) Curve
Appendix A: Digital data of p-y curves

CALIFORNIA DEPARTMENT OF
TRANSPORTATION

Caltrans ARS Online (v1.0.4)

This web-based tool calculates both deterministic and probabilistic acceleration response spectra for any location in California based on criteria provided in *Appendix B of Caltrans Seismic Design Criteria*. More...

SELECT SITE LOCATION

Figure 1. Nearby major faults with reference to the project site.

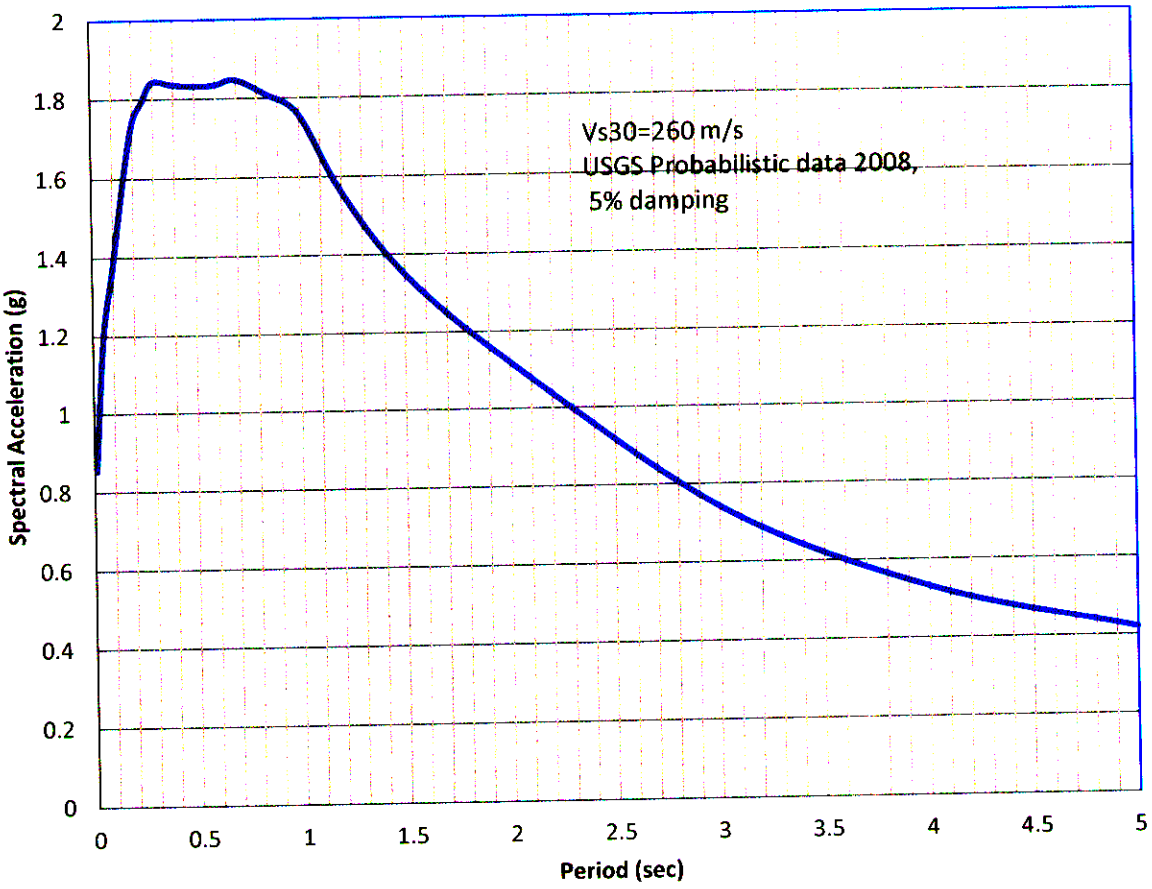


Figure 2. Recommended Acceleration Response Spectrum (ARS) Curve

Appendix A

Digital data of p-y curves

p-y curves for Abutment

At top of pile:

y (inch)	p(lbs/inch)
0.01	0.0222319
0.1	0.8983817
0.2	2.7357
0.3	5.2474
0.4	8.3303
0.5	11.9219
1	36.3031
1.5	69.6357
2	110.5462
2.5	158.2079
3	212.0468
3.5	271.6318
4	336.6229
4.5	406.7423
5	481.7569
5.5	561.4675
6	645.7008

At 5 feet below the top of pile:

0	0
0.024	56.214
0.75	177.063
1.5	223.0854
2.25	255.369
3	281.07
3.75	302.7735
4.5	321.7448
5.25	338.7093
6	354.126
6.75	368.3059
7.5	381.4707
8.25	393.7846
9	405.3731
24	562.14
45	562.14
60	562.14

At 10 feet below the top of pile:

y (inch)	p(lbs/inch)
0	0
0.024	70.512
0.75	222.0989
1.5	279.8271
2.25	320.322
3	352.56
3.75	379.7837
4.5	403.5805
5.25	424.8599
6	444.1978
6.75	461.9843
7.5	478.4975
8.25	493.9435
9	508.4795
24	705.12
45	705.12
60	705.12

At 15 feet below the top of pile:

0	0
0.024	74.952
0.75	236.084
1.5	297.4472
2.25	340.4921
3	374.76
3.75	403.698
4.5	428.9931
5.25	451.6125
6	472.168
6.75	491.0745
7.5	508.6276
8.25	525.0461
9	540.4975
24	749.52
45	749.52
60	749.52

At 20 feet below the top of pile:

y (inch)	p(lbs/inch)
0	0
0.0333333	725.264
0.0666667	1105.4074
0.1	1414.4443
0.1333333	1684.801
0.1666667	1929.6116
0.2	2155.818
0.2333333	2367.6404
0.2666667	2567.8807
0.3	2758.5165
0.3333333	2941.0075
0.3666667	3116.4696
0.4	3285.7789
0.65	4534.3749
0.9	5782.9709
24.9	5782.9709
48.9	5782.9709

At 30 feet below the top of pile:

0	0
0.0333333	1641.7946
0.0666667	2502.3328
0.1	3201.9058
0.1333333	3813.9176
0.1666667	4368.1002
0.2	4880.1682
0.2333333	5359.6747
0.2666667	5812.9627
0.3	6244.5087
0.3333333	6657.6173
0.3666667	7054.8142
0.4	7438.0831
0.65	10264.5546
0.9	13091.0262
24.9	13091.0262
48.9	13091.0262

At 40 feet below the top of pile:

y (inch)	p(lbs/inch)
0	0
0.0333333	2419.8963
0.0666667	3688.2725
0.1	4719.3967
0.1333333	5621.4614
0.1666667	6438.2898
0.2	7193.0441
0.2333333	7899.8049
0.2666667	8567.9214
0.3	9203.9914
0.3333333	9812.8861
0.3666667	10398.328
0.4	10963.2409
0.65	15129.2725
0.9	19295.304
24.9	19295.304
48.9	19295.304

At 50 feet and below:

0	0
0.0333333	2987.2080 *
0.0666667	4874.2122
0.1	6236.8876
0.1333333	7429.0053
0.1666667	8508.4795
0.2	9505.92
0.2333333	10439.9352
0.2666667	11322.88
0.3	12163.4742
0.3333333	12968.155
0.3666667	13741.8418
0.4	14488.3988
0.65	19993.9903
0.9	25499.5818
24.9	25499.5818
48.9	25499.5818

p-y curves for Bent

At top of Pile:

y (inch)	p(lbs/inch)
0	0
0.1	120
0.2	240
0.3	360
0.4	480
0.5	600
0.6	720
0.7	840
0.8	960
0.9	1080
1	1200
1.1	1320
1.2	1416.6087
2.7	1972.9927
74.7	1972.9927
146.7	1972.9927
218.7	1972.9927

At 5 feet below the top of pile:

0	0
0.1	180
0.2	360
0.3	540
0.4	720
0.5	900
0.6	1080
0.7	1260
0.8	1440
0.9	1620
1	1800
1.1	1871.3141
1.2	1928.2041
2.7	2757.7802
74.7	2757.7802
146.7	2757.7802
218.7	2757.7802

At 10 feet below the top of pile:

y (inch)	p(lbs/inch)
0	0
0.1	960.7688
0.2	1242.4998
0.3	1444.1869
0.4	1606.844
0.5	1745.5239
0.6	1867.6729
0.7	1977.5935
0.8	2078.0267
0.9	2170.8404
1	2257.3724
1.1	2338.6178
1.2	2415.3397
2.7	3535.406
74.7	3535.406
146.7	3535.406
218.7	3535.406

At 20 feet below the top of pile:

0	0
0.1	1072.6208
0.2	1603.8707
0.3	2029.4382
0.4	2398.2391
0.5	2729.8624
0.6	3034.5825
0.7	3318.6087
0.8	3586.0439
0.9	3839.7719
1	4081.9143
1.1	4314.0873
1.2	4537.5568
2.7	7829.6544
74.7	7829.6544
146.7	7829.6544
218.7	7829.6544

At 30 feet below the top of pile:

y (inch)	p(lbs/inch)
0	0
0.1	1943.9987
0.2	2962.9355
0.3	3791.2785
0.4	4515.9429
0.5	5172.1335
0.6	5778.4575
0.7	6346.2266
0.8	6882.951
0.9	7393.9313
1	7883.0805
1.1	8353.3892
1.2	8807.2061
2.7	15500.6828
74.7	15500.6828
146.7	15500.6828
218.7	15500.6828

At 40 feet below the top of pile:

0	0
0.1	3369.6552
0.2	5135.8425
0.3	6571.6615
0.4	7827.7678
0.5	8965.1843
0.6	10016.1639
0.7	11000.3137
0.8	11930.6518
0.9	12816.3661
1	13664.2393
1.1	14479.4549
1.2	15266.0844
2.7	26868.3085
74.7	26868.3085
146.7	26868.3085
218.7	26868.3085

At 50 feet and below:

0	0
0.1	5186.8087
0.2	7905.4476
0.3	10115.5604
0.4	12049.0471
0.5	13799.838
0.6	15417.5792
0.7	16932.4513
0.8	18364.4928
0.9	19727.8462
1	21032.9518
1.1	22287.7886
1.2	23498.6236
2.7	41357.5775
74.7	41357.5775
146.7	41357.5775
218.7	41357.5775

IH

FOUNDATION REVIEW

DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES

Date: 1/22/13

To: Structure Design
1. Design
2. R.E. Pending File
3. Specifications & Estimates
4. File

Geotechnical Services
1. GD - North ; South ; West
2. GS File Room

Salt Creek Br.
Structure Name

08 - Riv - 111 - 1.5
District County Route ~~Km~~ Post

08 - 214 56-0854 (new)
08-449101 56-~~0236~~ (old)
E.A. Number Structure Number

District Project Development
District Project Engineer

Foundation Report By: F. Qmehr Dated: 11/26/12

Reviewed By: D. Adams (SD) R. Price (GS)

General Plan Dated: None Foundation Plan Dated: None

☒ No changes. ☐ The following changes are necessary.

FOUNDATION CHECKLIST

Pile Types and Design Loads
- Pile Lengths
- Preddiling
- Pile Load Test
- Substitution of H Piles For Concrete Piles ☐ Yes ☒ No
- Footing Elevations, Design Loads, and Locations
- Seismic Data
- Location of Adjacent Structures and Utilities
- Stability of Cuts or Fills
- Fill Time Delay
- Effect of Fills on Abutments and Bents
- Fill Surcharge
- Approach Paving Slabs
- Scour
- Ground Water
- Tremie Seals/Type D Excavation

Jonathan Stice * 10
Structure Design Bridge Design Branch No.

Geotechnical Services

Rev. 06/02

* Jon received this sheet 1-23-2013 JS