FOR CONTRACT NO.: 01-49670**4**

INFORMATIONAL HANDOUT

WATER QUALITY

YUROK TRIBE ENVIRONMENTAL PROGRAM
401 WATER QUALITY CERTIFICATION
FOR KLAMATH RIVER BRIDGE HINGE REPLACEMENT PROJECT
US HIGHWAY 101, KLAMATH RIVER
YTWQCP-12-001

PERMITS

UNITED STATES ARMY CORPS OF ENGINEERS
NATIONWIDE PERMIT

CALIFORNIA COASTAL COMMISSION
COASTAL DEVELOPMENT

CALIFORNIA COASTAL COMMISION
AMENDMENT TO COASTAL DEVELOPMENT PERMIT

AGREEMENTS

CALIFORNIA DEPARTMENT OF FISH AND GAME
ALTERATION AGREEMENT 1600-2011-0300-R1

YUROK TRIBE
TRIBAL EMPOLYMENT RIGHTS ORDINANCE (TERO) REQUIRMENTS
MEMORANDUM OF UNDERSTANDING (MOU)
ATTACHMENT A YUROK TERO PROVISIONS
ATTACHMENT B TERO HIGHWAY CONSTRUCTION PERMIT (THCP) APPLICATION

MATERIALS INFORMATION

ASBESTOS-CONTAINING MATERIALS AND LEAD CONTAINING
PAINT SURVEY, KLAMATH RIVER BRIDGE (01-0028)
DEL NORTE COUNTY, CALIFORNA SEPTEMBER 2012

BIRD AND BAT EXCLUSION AND PROTECTION PLAN
FOR THE KLAMATH RIVER BRIDGE HINGE PROJECT
DECEMBER 2011

UNITED STATES ROUTE 101 KLAMATH RIVER BRIDGE
HINGE REPAIR PROJECT
HYROACOUSTIC MONITORIING PLAN
DATED OCTOBER 1, 2012

KLAMATH BRIDGE HINGE REPAIR
UNDERWATER NOISE ANALYSIS
DATED JUNE 8, 2012

ROUTE: 01-DN-101-R4.0

YUROK TRIBE

190 Klamath Boulevard • Post Office Box 1027 • Klamath, CA 95548
Phone: (707) 482-1350 • Fax: (707) 482-1377

February 9, 2012 **REVISED** YTWQCP-12-001

Kevin Church
Project Manager
California Department of Transportation
PO BOX 3700
Eureka, CA 95502-3700

Subject: Yurok Tribe Water Quality Control Plan Section 401 Water Quality Certification for *Klamath River Bridge Hinge Replacement Project, US Highway 101, Klamath River.*

Dear Mr. Church:

The Yurok Tribe Environmental Program (YTEP) received your staff's request to extend the date in which this project can be completed. We have revised this water quality certification to accommodate this project's need to continue until 2015, as requested.

Project Description

According to the project description and supporting documentation, the purpose of the project is to replace hinges 2, 8 and 11 on the Klamath River Bridge on US Highway 101 located between post miles 4.04 and 4.42. In addition, a methacrylate seal and traffic striping will be placed on the bridge deck and a 12 inch by 12 inch by 1 inch concrete section of bridge will be repaired.

Certification

We hereby grant Yurok Tribe Water Quality Control Plan Section 401 Certification for your project with the following conditions:

1. All work in and below the ordinary high water line of the Klamath River shall occur between May 15th and October 15th. Upon project commencement, this certification is valid for three consecutive construction seasons through October 15, 2015. This certification is valid for this period only. Should the project need to be extended, early consultation with YTEP should be initiated.

2. All sites will be 'winterized' prior to seasonal work shut down. **An inspection by Yurok**

Tribe staff shall be requested at least 7 days in advance of seasonal work shut down. The applicant may request seasonal extensions based on field review by YTEP and in conjunction with other permit and regulatory requirements (i.e. NOAA fisheries, U.S. Army Corps).

3. You shall limit any excavation work in and adjacent to applicable waters to that necessary for the project.

4. No construction materials -- including cement, debris, oil or petroleum products, sand, sawdust, silt, slash, or soil -- shall be allowed to enter or be placed where it may enter the live channel of applicable waters in amounts that are considered to have adverse effects on the beneficial uses.

5. You shall not permanently dispose of any construction material, demolition wastes, wastewater, or any other pollutant within applicable waters or on any lands within the Yurok Reservation boundaries.

6. Water used in dust suppression shall contain no contaminants that could violate surface water or aquifer standards (see Yurok Tribe Water Quality Control Plan for water quality objectives).

7. All stationary machinery that uses gasoline or diesel fuel shall be placed within impermeable spill containment vessels capable of preventing migration of fuel in the event of a spill.

8. All contractors and subcontractors shall report, verbally and in writing, immediately upon discovery, any spills of chemical contaminants, including oil, gasoline, hydraulic fluid, or diesel fuel, during or after operations. Reports shall be submitted to EPA Region 9 and the Yurok Tribe. Appropriate cleanup of spills shall commence immediately. Within two weeks following cleanup, a summary report shall be submitted to EPA Region 9 and the Yurok Tribe that describes the reason for the spill, the spill duration and volume, steps taken to correct the problem, the remediation/clean up activities and steps taken to prevent a recurrence of the problem.

9. Best Management Practices (BMPs) for sediment and turbidity control shall be implemented in accordance with the Erosion, Grading, Drainage and Water Pollution Control Plan and supporting documentation provided in the permit application. BMPs shall be in place prior to, during, and after construction in order to ensure that negligible discharges to applicable waters are ensured.

10. You shall revegetate the impacted riparian areas in accordance with the Revegetation, Mitigation and Monitoring Plan provided in the permit application. Pre and post documentation of the revegetation work is required.

11. Water discharged from the project site shall not contain settleable materials or suspended materials in concentrations that cause nuisance or adversely affect beneficial uses. The project shall not violate any narrative and numeric criteria established in the Yurok Tribe Water Quality Control Plan (see Yurok Tribe Water Quality Control Plan for water quality objectives)

12. If, at any time, an unauthorized discharge to surface water occurs, or any water quality problem arises, the project shall cease immediately and you shall immediately notify EPA Region 9 and the Yurok Tribe.

13. Yurok Tribe shall be notified at least three business days in advance of construction in order to allow staff to be present during construction.

14. If there are any substantive changes in the proposed project that may affect water quality, you shall notify YTEP, immediately. Failure to do so will result in revocation of this certification.

15. You shall request written permission for any activities related to water withdrawal and or water drafting prior to commencement of this activity. Written requests for water withdrawal shall be submitted to YTEP.

16. You shall provide a copy of this certification to all contractors and subcontractors. You also shall review the conditions of this certification with all such contractors and subcontractors.

If there are any questions regarding the permit or monitoring conditions, please do not hesitate to contact YTEP staff. The point of contact at the Yurok Tribe is Ken Fetcho. Please contact Mr. Fetcho at (707) 954-1523 or at kfetcho@yuroktribe.nsn.us . The point of contact for the proposed project at EPA Region 9 is Melissa Scianni. Please contact Ms. Scianni at (415) 972-3821 or at Scianni.Melissa@epamail.epa.gov .

Sincerely,

FOR
Kathleen Sloan
Program Director
Yurok Tribe Environmental Program

c-copy:

Carol Heidsiek, U.S. Army Corps of Engineers
Melissa Scianni, U.S. Environmental Protection Agency
David Hillemeier, Yurok Tribe Fisheries
Thomas P. O'Rourke Sr., Chair, Yurok Tribe
Troy Fletcher, Executive Director, Yurok Tribe
Robert McConnell, Yurok Tribe Historic Preservation Officer
John Corbett, Senior Attorney, Yurok Tribe
Ken Fetcho, Assistant Director, Yurok Tribe Environmental Program
Joe James, Transportation Manager, Yurok Tribe

3. Maintenance.

(a) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure, or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill; such modifications, including the removal of material from the stream channel, must be immediately adjacent to the project or within the boundaries of the structure or fill. This NWP also authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this two-year limit may be waived by the district engineer, provided the permittee can demonstrate funding, contract, or other similar delays.

(b) This NWP also authorizes the removal of accumulated sediments and debris in the vicinity of existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.) and/or the placement of new or additional riprap to protect the structure. The removal of sediment is limited to the minimum necessary to restore the waterway in the vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend farther than 200 feet in any direction from the structure. This 200 foot limit does not apply to maintenance dredging to remove accumulated sediments blocking or restricting outfall and intake structures or to maintenance dredging to remove accumulated sediments from canals associated with outfall and intake structures. All dredged or excavated materials must be deposited and retained in an area that has no waters of the United States unless otherwise specifically approved by the district engineer under separate authorization. The placement of new or additional riprap must be the minimum necessary to protect the structure or to ensure the safety of the structure. Any bank stabilization measures not directly associated with the structure will require a separate authorization from the district engineer.

(c) This NWP also authorizes temporary structures, fills, and work necessary to conduct the maintenance activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

(d) This NWP does not authorize maintenance dredging for the primary purpose of navigation. This NWP does not authorize beach restoration. This NWP does not authorize new stream channelization or stream relocation projects.

Notification: For activities authorized by paragraph (b) of this NWP, the permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 31). The pre-construction notification must include information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals. (Sections 10 and 404)

Note: This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the Clean Water Act Section 404(f) exemption for maintenance.

A. **Regional Conditions**

1. **Regional Conditions for California, excluding the Tahoe Basin**

http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps/2012-NWP-RC-CA.pdf

2. **Regional Conditions for Nevada, including the Tahoe Basin**

http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps/2012-NWP-RC-NV.pdf

3. **Regional Conditions for Utah**

http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps/2012-NWP-RC-UT.pdf

4. **Regional Conditions for Colorado**.

http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps//2012-NWP-RC-CO.pdf

B. **Nationwide Permit General Conditions**

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR §§ 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR § 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

☐ 1. **Navigation**.

☐ (a) No activity may cause more than a minimal adverse effect on navigation.

☐ (b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

☐ (c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

☐ 2. **Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.

☐ 3. **Spawning Areas**. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

☐ 4. **Migratory Bird Breeding Areas.** Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

☐ 5. **Shellfish Beds**. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

☐ 6. **Suitable Material**. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

☐ 7. **Water Supply Intakes**. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

☐ 8. **Adverse Effects From Impoundments**. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

☐ 9. **Management of Water Flows**. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

☐ 10. **Fills Within 100-Year Floodplains**. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

☐ 11. **Equipment**. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

☐ 12. **Soil Erosion and Sediment Controls**. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

☐ 13. **Removal of Temporary Fills**. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

☐ 14. **Proper Maintenance**. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

☐ 15. **Single and Complete Project**. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

☐ 16. **Wild and Scenic Rivers**. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

☐ 17. **Tribal Rights**. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

☐ 18. **Endangered Species**.

☐ (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

☐ (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.

☐ (c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

☐ (d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

☐ (e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

☐ (f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.noaa.gov/fisheries.html respectively.

☐ 19. **Migratory Birds and Bald and Golden Eagles**. The permittee is responsible for obtaining any "take" permits required under the U.S. Fish and Wildlife Service's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such "take" permits are required for a particular activity.

☐ 20. **Historic Properties**.

☐ (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

☐ (b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

☐ (c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

☐ (d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non- Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

☐ (e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

☐ 21. **Discovery of Previously Unknown Remains and Artifacts**. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

☐ **22. Designated Critical Resource Waters**. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

☐ (a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

☐ (b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

☐ **23. Mitigation**. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

☐ (a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

☐ (b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

☐ (c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

☐ (1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.

☐ (2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

☐ (3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

☐ (4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

☐ (5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.

☐ (d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.

☐ (e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

☐ (f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

☐ (g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and

performance of the compensatory mitigation project, and, if required, its long-term management.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

☐ **24. Safety of Impoundment Structures**. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

☐ **25. Water Quality**. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

☐ **26. Coastal Zone Management**. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

☐ **27. Regional and Case-By-Case Conditions**. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

☐ **28. Use of Multiple Nationwide Permits**. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

☐ **29. Transfer of Nationwide Permit Verifications**. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

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

(Transferee)

(Date)

☐ **30. Compliance Certification**. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

☐ (a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

☐ (b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

☐ (c) The signature of the permittee certifying the completion of the work and mitigation.

☐ **31. Pre-Construction Notification**.

☐ (a) **Timing**. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

☐ (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

☐ (2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2)..

☐ (b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

☐ (1) Name, address and telephone numbers of the prospective permittee;

☐ (2) Location of the proposed project;

☐ (3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

☐ (4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

☐ (5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

☐ (6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

☐ (7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

☐ (c) Form of Pre-Construction Notification: he standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

☐ (d) Agency Coordination:

☐ (1) The district engineer will consider any comments from Federal and state agencies

concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

☐ (2) For all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

☐ (3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

☐ (4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

C. District Engineer's Decision

☐ 1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. For a linear project, this determination will include an evaluation of the individual crossings to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to intermittent or ephemeral streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51 or 52, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in minimal adverse effects. When making minimal effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

☐ 2. If the proposed activity requires a PCN and will result in a loss of greater than 1/10- acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the

district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

☐ 3. If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (a) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (c) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period, with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

D. **Further Information**

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project.

E. **Definitions**

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other

projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

I**ntermittent stream**: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters” include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line, which is defined at 33 CFR 328.3(d).

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a jurisdictional water of the United States. If a jurisdictional wetland is adjacent – meaning bordering, contiguous, or neighboring – to a waterbody determined to be a water of the United States under 33 CFR 328.3(a)(1)-(6), that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.

CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
710 E STREET, SUITE 200
EUREKA, CA 95501
(707) 445-7833 FAX (707) 445-7877

Date: **March 27, 2012**
Permit Application No.: **1-11-039**

COASTAL DEVELOPMENT PERMIT

On **February 9, 2012**, the California Coastal Commission granted to

California Department Of Transportation
Attn: Kevin Church, Project Manager

this permit subject to the attached Standard and Special conditions, for development consisting of

Replacing three bridge hinges (Hinges 2, 8 and 11) on the Klamath River Bridge (Bridge #1-28)

more specifically described in the application filed in the Commission offices.

The development is within the coastal zone at

Highway 101 between Post Miles 4.04/4.42 near the town of Klamath, Del Norte County

Issued on behalf of the California Coastal Commission by

CHARLES LESTER
Executive Director

By: **Robert S. Merrill**
North Coast District Manager

ACKNOWLEDGMENT:

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

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

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

June 12, 2012
Date

Signature of Permittee

COASTAL DEVELOPMENT PERMIT

STANDARD CONDITIONS:

1. **Notice of Receipt and Acknowledgment.** The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. **Expiration.** If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. **Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.

4. **Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

SPECIAL CONDITIONS:

1. **Construction Standards & Responsibilities.**

Construction-related standards and responsibilities shall include, but shall not be limited to, the following requirements and best management practices (BMPs):

Not Feasible, See herein after and attached cover letter & Amendment Request

(A) The repair activities authorized by CDP 1-11-039 shall be undertaken between June 15 through October 15 annually, except as otherwise specified in the special conditions of CDP 1-11-039, and in accordance with the following requirements:

1. Hinge 8, located on the north end of the Klamath River Bridge, shall be repaired during the first construction season commencing June 15, 2013 and ending October 15, 2013 as proposed by Caltrans; Hinges 11 and 2 on the north and south ends of the Klamath River Bridge, respectively, shall be repaired during the June 15 – October 15 work windows of 2014 (Hinge 11) and 2015 (Hinge 2); and Starting year may move out depending on amendment approval date & conditions.

2. All proposed and approved revegetation measures shall be implemented no later than the end of the rainy season of the year following the repair of each hinge; and

COASTAL DEVELOPMENT PERMIT

3. Erosion control re-seeding with approved mix shall be implemented immediately following site disturbance each season to stabilize and condition soils in preparation for the following year's restoration plantings; and

4. Night lighting shall be restricted to the end of the bridge where hinge replacement activities are underway, but lighting may also be used in the approved staging areas as needed, at the traffic control and flagging locations, traffic personnel stations, and at public service areas for waiting motorists and site personnel, and all lighting shall be minimized, shielded, and directed downward and away from sensitive habitat areas including occupied nests on the bridge and previously identified bat roosting locations and riparian corridor habitat outside of the active work area to the extent possible consistent with safety and adequate work progress; and

5. Refueling where spillage could reach the active channel, percussive demolition activities, or placement of wet construction materials with the potential to spill or run off into the active channel, shall not be undertaken during rainy weather or fog, or at night due to visibility limitations that would compromise adequate site monitoring or the implementation of emergency response measures; and

6. Disturbance associated with vegetation removal, grading, placement of bird/bat exclusion measures, demolition, or other construction-related activities shall be limited to the authorized active repair area of the subject bridge for that season except as otherwise specified herein; and

7. Site preparation activities such as vegetation removal and the placement of exclusion measures on the bridge that must be completed before nesting season commences may be undertaken prior to the annual construction season commencing on June 15, and shall be undertaken under the direct, continuous supervision of a qualified Caltrans biologist; and

(B) Bird and bats exclusion measures shall be installed on the bridge between February 1 and March 1 of the forthcoming construction season commencing June 15 of that year, and shall be placed only on the end of the bridge subject to hinge repair during the forthcoming construction season. Exclusion measures shall be removed completely at the end of the pertinent season's construction activities or by October 15, whichever occurs first.

(C) **Prior to the commencement of construction**, the limits of the work areas and staging areas shall be delineated in cooperation with a qualified Caltrans biologist, limiting the potential area affected by construction and minimizing impacts to wetlands and other ESHA during construction. All vehicles and equipment shall be restricted to pre-established work areas and established or designated staging areas.

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(D) All motorized equipment used at the project site shall be maintained in proper working condition and shall be free of drips and leaks of coolant and petroleum products.

(E) A spill prevention and clean-up kit shall be available on-site for immediate use in case of an accidental spill. Equipment or vehicles operated adjacent to or on the bridge deck above the Klamath River shall be limited to those immediately necessary to complete project work, and shall be checked and maintained daily to prevent leaks. All other vehicles, including those vehicles for the convenience of site supervisors, shall be parked in the approved staging areas away from the river.

(F) On-site refueling activities that pose a risk of fuel spill to coastal waters shall be limited to heavy equipment on the bridge such as cranes that cannot be readily relocated for fueling and to equipment that must be lowered to the work area by crane (such as bobcat, excavator, or fork-lift), and shall be subject to the following requirements:

1. Refueling activities shall be limited to daylight hours and weather conditions with sufficient visibility to ensure visual contact between the valve operator and the operator of the fuel discharge connection device; and

2. An additional worker shall be stationed at the shutoff valve at all times during refueling; and

3. The hose nozzle shall be contained in a bucket or other containment device when being moved between the fuel truck and the equipment to be refueled; and

4. Absorbent pads shall be placed beneath the fill tube and fuel tank to catch any drips or spilled fuel; and

5. Spill kits shall be maintained in close proximity to the refueling locations and shall be employed immediately in the event of a fuel spill.

(G) All trash and debris shall be disposed in the proper trash and recycling receptacles at the end of every construction day and in a manner that prevents access by wildlife.

(H) The applicant shall provide adequate disposal facilities for solid waste, including excess concrete, asphalt and paint scrapings, and other demolition or day-to-day construction wastes, which shall be stored separately from any lead or other contaminated soils or debris designated for hazardous waste disposal. Hazardous wastes shall be clearly marked and staged for proper removal and disposal within the staging areas away from the river, or elsewhere outside of the coastal zone

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where approved and permanently documented in the project files by the Caltrans resident engineer in charge of the project.

(I) Debris shall be disposed of at a legal disposal site or recycled at a recycling facility. If the disposal site is located in the coastal zone, a coastal development permit or an amendment to this permit shall be required before disposal can take place unless the Executive Director determines that no amendment or new permit is legally required; if the disposal location is outside of the coastal zone, the Caltrans resident engineer responsible for the project shall document in the permanent project records that the contractor has disposed of the debris or other construction wastes at a properly licensed disposal site or recycling facility.

(J) All stock piles of debris shall be covered, enclosed on all sides, shall be located as far away from the river or tributaries to the river as possible, and shall not be stored in contact with the soil and all construction materials shall be stored within the project area in a manner that protects soils within the work areas, and the waters of the river, from discharge.

(K) Machinery and equipment shall be maintained and washed off-site in confined areas specifically designed to control runoff. The applicant shall store, utilize, and dispose of thinners and solvents or other chemicals used in project activities in a manner that is consistent with applicable local, state, and/or federal laws and, under no circumstances shall they be discharged into coastal waters, or into septic, sanitary or storm sewer systems.

(L) The discharge of any hazardous materials into any receiving waters shall be prohibited. Concrete or other construction substance washouts shall not be undertaken at any location where runoff or rinsate may reach coastal waters. The Caltrans monitoring biologist and resident engineer shall identify and document in the permanent construction records the appropriate use of suitable facilities for these purposes.

(M) No fill of wetlands is authorized by this permit except as specified for temporary pad construction and for restorative grading for the purpose of site restoration after repairs are completed; no construction or fill, access by materials or equipment, or other discharge of any material within the waters of the Klamath River is authorized by this permit approval.

(N) Adequate stocks of stormwater runoff and erosion control barrier materials shall be kept onsite and made available for immediate use. Appropriate erosion, sedimentation, and runoff control devices shall be installed around all work areas and staging areas **prior to commencement of construction** and shall be maintained throughout the duration of construction activities, and inspected weekly by a Caltrans biologist, in addition to other inspections that may be routinely made by Caltrans or the Caltrans contractor, with inspection results included in the biologists' monitoring logs.

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(O) If rainfall is forecast during the time construction activities are being performed, any exposed soil areas shall be promptly mulched or covered with plastic sheeting and secured with sand bagging or other appropriate materials before the onset of precipitation;

(P) Any and all debris resulting from demolition or construction activities, and any remaining construction material, shall be removed from the project site within 24 hours of completion of the project. Any debris accidentally discharged into coastal waters shall be recovered immediately and disposed of properly.

(Q) Best Management Practices (BMPs) and Good Housekeeping Practices (GHPs) designed to prevent spillage and/or runoff of demolition or construction-related materials, and to contain sediment or contaminants associated with demolition or construction activity, shall be implemented prior to the on-set of such activity.

(R) Upon completion of construction activities and prior to the onset of the rainy season, all disturbed areas shall be restored in accordance with the requirements specified in the approved plan required pursuant to Special Condition No. 2.

Not Feasible → (S) Demolition activities relying on percussive impact techniques (such as battering with a hoe ram) shall only be undertaken when the nearest location of the Klamath River wetted channel is at least approximately 140 feet away from the impact point (the pertinent setback distance shall be determined in accordance with the requirements set forth in Special Condition 11) and shall be limited to daylight hours and weather conditions permitting visual monitoring of the Klamath River for a minimum distance of 300 feet up and down river, as measured from the nearest edge of the bridge deck. A qualified Caltrans biologist shall be on site continuously to monitor riverine habitat during all demolition activities deploying percussive techniques. The monitor shall direct that the Caltrans site supervisor stop work immediately if marine mammals are present and demolition activities shall not re-commence until marine mammals have moved more than 300 feet from the bridge deck, or as otherwise authorized by a NOAA Fisheries biologist, and with the consent of the Executive Director. The biological monitor shall log all marine mammal sightings and behavioral observations, and provide weekly copies of the daily biological monitoring logs to the Executive Director and to NOAA Fisheries and other agencies requesting copies.

See hereinafter & Attached

KC

(T) Prior to the commencement of the bridge repair activities authorized by this permit, the permittee shall ensure that all on-site workers and contractors understand and agree to observe the standards for work outlined in this permit and in the detailed project description included as part of the application submittal and as revised by these conditions.

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2. **Final Erosion Control and Water Quality Protection Plan.**

(A) **Prior to commencement of construction**, Caltrans shall submit for the review and approval of the Executive Director, a final Erosion Control and Water Quality Protection Plan based on the preliminary conceptual erosion control plan prepared by the Caltrans North Region Division of Landscape Architecture in a Caltrans Memorandum dated August 19, 2010 prepared by the North Region Division of Landscape Architecture and in accordance with the "Water Quality Assessment" dated August 10, 2010 prepared by Miguel Villicana, Caltrans NPDES Storm Water Coordinator, North Region Office of Environmental Engineering, and with the project description components and mitigation measures included in the "Erosion Control, Grading, Drainage and Water Pollution Control Plan dated September 20, 2011 prepared by Todd Lark, Project Engineer. (See Exhibit 6). The final plan shall be prepared by a licensed civil engineer with substantial training and experience in erosion control and water quality engineering principles and practices. The final plan shall additionally incorporate all of the pertinent requirements of Special Condition 1 set forth above, and shall include the requirement that an as-built plan showing all post-construction Best Management Practices implemented at the end of the final construction season be submitted to the Executive Director within thirty (30) days after completion or by November 15 of the final construction year. The required final report shall additionally document the stabilization of all disturbed soil areas, the backfilling and recontouring of excavation areas to return the areas to pre-project conditions, and the removal of all temporary BMPs from the project site, as proposed in the approved plan. If the report documents that any of the BMP measures identified in the plan failed to meet the objectives of stabilizing soils and returning disturbed areas to pre-project conditions following completion of construction, the permittee shall submit a revised or supplemental site-specific erosion and sediment control plan to compensate for those portions of the original plan that did not meet the post-construction plan objectives. Water quality (SWPPP or other) inspection reports shall be made timely available to Commission staff upon request.

(B) All project activities shall be conducted in accordance with the final Erosion Control and Water Quality Protection Plan approved by the Executive Director. Any changes to the final plan shall require an amendment of CDP 1-11-039 unless the Executive Director determines that no amendment is legally required.

Not Wise → Please expect a monthly permit amendment Request. KC

3. **Revegetation and Monitoring Plan.**

(A) All project activities shall be undertaken in accordance with the "Klamath River Bridge Hinge Replacement Project Revegetation, Mitigation and Monitoring Plan" dated November 2011, and attached hereto as Exhibit 4, subject to the following changes which shall be incorporated into a final plan submitted for the review and approval of the Executive Director **prior to commencement of construction**:

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- Both the plant palette and planting plan (Appendix A), and the success criteria should be organized according to revegetation areas. The quantity of plants, for example, should be specified for each area.
- More than one habitat type is specified for most areas. If these habitat areas are not coextensive, then the actual mosaic of habitats should be shown as polygons on a map.
- Rather than expressing success criteria in terms of percent survival, express these criteria as the actual number of plants that are to be present. This will automatically include any natural recruitment.
- Success criteria should include criteria for percent ground cover for each vegetation stratum.
- The success criterion for exotic species should be no more than 10% absolute cover rather than relative cover.
- Coyote bush should be removed from the planting palette for Hooker's Willow Riparian habitat or ecologically justified.
- Add the following language: "Final monitoring for success shall take place after 5 years or after 3 years with no remediation or maintenance other than weeding, whichever is longer."
- Add the following language: "If the final report indicates that the restoration project has been unsuccessful, in part or in whole, based on the approved success criteria, the permittee shall submit within 90 days a revised or supplemental restoration program to compensate for those portions of the original program which did not meet the approved success criteria. The revised restoration program shall be processed as an amendment to the coastal development permit unless the Executive Director determines that no permit amendment is legally required.

(B) Upon submittal of the final monitoring report, pursuant to the final revegetation, mitigation, and monitoring plan approved by the Executive Director, the Executive Director shall determine whether the restoration project has been successful, in part or in whole, based on the approved success criteria. If the Executive Director determines that the restoration project has been unsuccessful, the permittee shall submit within ninety (90) days a revised or supplemental restoration program to compensate for those portions of the original program which did not meet the approved success criteria. The revised restoration program shall be processed as an amendment to the coastal development permit unless the Executive Director determines that no permit amendment is required.

(C) Any changes to the approved "Klamath River Bridge Hinge Replacement Project Revegetation, Mitigation and Monitoring Plan" shall require an amendment to CDP 1-11-039, unless the Executive Director determines that no amendment is legally necessary.

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4. **Protection of Archaeological Resources** The Commission appears to be encroaching on the Tribe's Sovereign rights.

(A) A monitor from the Yurok Tribe shall be present during all earth moving operations. If an area of historic or prehistoric cultural resources or human remains are discovered during the course of the project, all construction shall cease and shall not recommence except as provided in subsection (B) hereof, and a qualified cultural resource specialist shall analyze the significance of the find.

(B) A permittee seeking to recommence construction following discovery of the cultural deposits shall submit an Archaeological Plan for the review and approval of the Executive Director.

1. If the Executive Director approves the Archaeological Plan and determines that the Archaeological Plan's recommended changes to the proposed development or mitigation measures are *de minimis* in nature and scope, construction may recommence after this determination is made by the Executive Director. The Executive Director shall consider among other things, any additional excavation or grading necessary to recover or otherwise protect the discovered cultural deposits would be performed beyond the disturbance area footprint of the approved project, in making such a determination.

2. If the Executive Director determines that the changes to the proposed development or mitigation measures necessary to undertake the proposed Archaeological Plan are <u>not</u> *de minimis*, construction shall not recommence until after an amendment to this permit is approved by the Commission.

(C) The applicant, in preparing construction bidding documents for the subject project, shall include provisions requiring bidders to acknowledge and address potential construction schedule delays that may arise if discovery of cultural resources occurs during project activities. In accepting Coastal Development Permit 1-11-039, the applicant acknowledges and agrees that Caltrans/contractor project delivery schedules may be delayed to process an amendment made necessary by the discovery of historic or cultural resources during project activities.

Not Feasible → 5. **Hydroacoustic Impact Limits and Monitoring for Demolition of Hinge 8**

(A) Demolition activities authorized by CDP 1-11-039 shall not produce sound exposure or sound pressure levels within the waters of the Klamath River in excess of either component of the dual metric exposure criteria listed below. To confirm compliance, each strike of the hoe-ram or other impact-based demolition equipment deployed during demolition of the first complete half width of Hinge 8 shall be counted, measured, and logged by the hydroacoustic monitor and the biological monitor and the recorded data retained in the permanent project records.

See hereinafter and attached

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DUAL METRIC EXPOSURE CRITERIA:

1) SEL-accumulated:
The SEL-accumulated threshold shall be defined as an accumulated Sound Exposure Level (SEL) at or above 183 dB re one micropascal squared-second, measured and calculated in accordance with the simple summation procedure where Total SEL = Single Strike SEL + 10log(number of strikes), based on real-time hydroacoustic monitoring and calculation methods set forth in the monitoring plan required herein.

2) Peak SPL:
The Peak SPL shall be defined as the peak sound pressure level (SPL) at or above 206 dB re one micropascal from any single-impact strike of the hoe-ram against the bridge structure, based on real-time hydroacoustic monitoring as set forth in the monitoring plan required herein.

(B) By July 1, 2012, or within such additional time as the Executive Director may authorize for cause, Caltrans shall submit a Hydroacoustic Monitoring Plan for Bridge Demolition (hereinafter, "Plan") to the Executive Director for review and approval. Demolition shall not commence until the Executive Director has approved the final Plan incorporating any changes that the Executive Director may require, and the hydroacoustic monitoring program required by the final Plan is fully implemented.

At a minimum the Plan shall include the following:

1) A Caltrans employee authorized to direct the contractor undertaking demolition shall be on site during all demolition activities. Active demolition shall not commence until hydroacoustic monitoring personnel and equipment are deployed in accordance with the requirements of the final approved Plan and the Caltrans biological monitor is on-site and has verified that the hydroacoustic monitoring program is ready to commence. All demolition activities associated with the demolition of the first complete half width of Hinge 8 that may produce sound exposure or sound pressure levels within the water column of the Klamath River shall only be undertaken at Hinge 8 while hydroacoustic monitoring is continuously undertaken. The Caltrans biological monitor shall be on site during all hydroacoustic monitoring; and

2) In the event of an exceedance of either criterion of the dual metric exposure criteria, all pertinent demolition operations shall be immediately stopped and shall not recommence unless the Executive Director, in consultation with the fisheries biologists of the California Department of Fish & Game and the National Marine Fisheries Service so authorizes based on the resumption of hydroacoustic monitoring of all pertinent demolition operations and the deployment of additional sound attenuation or other measures deemed

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likely by qualified technical experts to return the demolition operations to conformance with the duel metric exposure criteria;

3) If the return to demolition operations after the implementation of the additional measures discussed in Subparagraph (2) above results in an exceedance of either criterion of the dual metric exposure criteria, demolition operations shall be stopped immediately and shall not re-commence until or unless the Commission approves an amendment to CDP 1-11-039 that proposes substantial changes to the proposed project that are deemed by the Executive Director to offer a high likelihood of success in preventing further exceedance of the dual metric exposure criteria.

4) Hydroacoustic monitoring shall be implemented during all active demolition activities associated with the demolition of the first complete half width of Hinge 8, however activities that support demolition but could not transmit sound through the bridge structure or substrate (such as staging, grading, equipment setup) may be undertaken without hydroacoustic monitoring; and

5) The Plan shall describe a program of hydroacoustic monitoring capable of continuous assessment of the compliance of pertinent Hinge 8 demolition activities with the dual metric exposure criteria set forth above, including the plan for and maps of proposed hydrophone and personnel deployment, specified fixed and mobile locations for hydrophone placement (which shall include locations across a proposed transect at specified representative distances on the north, south and mid-river areas, as well as randomized mobile locations) and at a representative and adequate selection of locations up to 300 feet up and down-river from the bridge crossing of the river on a real-time basis, including the number, location, distances, and depths of hydrophones (which shall be located in waters of at least one meter in depth), and associated monitoring equipment and personnel, the method of translating monitoring data into real-time direction, and the method of conveying critical data to the Caltrans site supervisor; and

6) Provide for continuously counting and recording demolition "strikes" in a manner that enables the time of each strike, the number of strikes, the length of time of any cessation of demolition within a work day, the peak sound pressure and other measures of sound energy per strike, or other information necessary to assess conformance with the dual metric criteria set forth above, and to otherwise adequately implement the Plan; and

7) Provide for daily logging of the hydroacoustic monitoring results by the Caltrans biological monitor, and daily submittal of summary reports to the Executive Director for the first week of demolition and weekly thereafter, unless non-compliance occurs or the Executive Director requests a different notification schedule. Non-compliance shall be reported immediately to the site supervisor, to the biological monitor and to the Executive Director. Any

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exceedance of the dual metric criteria shall be logged in the permanent project records, and in the biological monitoring reports; and

8) Provide procedures and contact information for notifying all pertinent parties of any failure to comply with the limits of the dual metric criteria, including the requirement that work stop immediately and not resume until the Executive Director authorizes resumption of work or until an amendment of CDP 1-11-039 is authorized by the Commission, unless the Executive Director determines that no amendment is legally required; and

9) Provide for submittal to the Executive Director of a final written hydroacoustic monitoring report prepared by the consulting acoustician within thirty (30) days after completion of Hinge 8 demolition. The report shall include but is not limited to the providing the hydrological monitoring data, any changes or problems with the field monitoring Plan, compliance with the dual metric criteria set forth above, and description of and assessment of efficacy of any adaptive measures that were implemented in the demolition activities as the result of the monitoring, or of any field adjustments of the monitoring Plan itself. The final report shall include an assessment of the monitoring plan and recommendations for changes or additions to future monitoring efforts. The final plan shall compare the predicted acoustic impacts of the Hinge 8 demolition with the actual measurements taken during the demolition activities. The report shall include a reconciliation of these comparative modeled and measured sound levels and provide recommendations for adaptation and/or improvement of future demolition modeling efforts, if applicable.

(C) Project activities shall be conducted at all times in accordance with the provisions of the final approved Plan and in accordance with any additional plan(s) for hydroacoustic monitoring that the Executive Director may require and authorize pursuant to the provisions of this special condition. Any proposed changes to the final approved Plan(s) shall be reported to the Executive Director. No changes to the final approved Plan(s) shall occur without an amendment to CDP 1-11-039 unless the Executive Director determines that no amendment is legally required.

6. **Bird and Bat Exclusion and Protection Plan**

(A) All project activities shall be undertaken in accordance with the "Bird and Bat Exclusion and Protection Plan for the Klamath River Bridge Hinge Replacement Project" dated December 2011, submitted by Caltrans on December 15, 2011 and attached hereto as Exhibit 5, and as required herein.

(B) All bird and bat exclusion measures selected shall be pre-approved and installed under the supervision of a qualified Caltrans biologist between February 1 and March 1 annually, and shall be limited to the location of the single hinge area scheduled for repair during the following construction season. Exclusion measures

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shall be removed upon completion of that season's construction activities or by October 15, whichever occurs first. All exclusion measures shall be checked daily for the first three days after initial installation, by a qualified Caltrans biologist, to ensure performance of the measure, and to ensure that no entrapment of birds or bats has occurred. If the measures are not performing adequately, or entrapment occurs, removal and release of trapped birds or bats shall be undertaken immediately by a qualified Caltrans biologist, and necessary repairs or adjustments implemented and monitored daily for an additional three days. The exclusion measures shall thereafter be inspected at least weekly, and shall be timely adjusted or repaired and replaced as necessary under the supervision of a qualified Caltrans biologist as needed to protect wildlife. During construction activities taking place near the exclusion areas, exclusion measures shall be adjusted to clear the area where demolition will remove a portion of the bridge and the areas of the bridge on each side of the demolition location will remain subject to exclusion measures until demolition is completed. The exclusion measures shall be checked daily by a Caltrans biologist during the active demolition and at least weekly thereafter until removed.

(C) Except as specified in Special Condition 6, any changes to the approved "Bird and Bat Exclusion and Protection Plan for the Klamath River Bridge Hinge Replacement Project" (Exhibit 5) shall require an amendment to CDP 1-11-039, unless the Executive Director determines that no amendment is legally necessary.

7. **Evidence of Final State and Federal Authorizations and Approvals; Notifications of Bridge Closures**

(A) **Prior to commencement of construction**, Caltrans shall submit evidence to the satisfaction of the Executive Director (including copies of the pertinent final documents) that final approvals or authorizations of all state and federal agencies with review authority over the subject project have been received by Caltrans, including but not limited to authorizations by the California Department of Fish and Game, State Lands Commission, NOAA Fisheries, Yurok Tribal Water Quality Division, and the Army Corps of Engineers. The applicant shall inform the Executive Director of any changes to the project required by any state or federal agency. Such changes shall not be incorporated into the project unless the applicant obtains a coastal development permit amendment; unless the Executive Director determines that no amendment is legally required.

(B) Caltrans shall ensure that public notification or road closures shall be undertaken in accordance with the plan submitted by Caltrans on January 19, 2011, including the provision of such notice not less than two weeks before any bridge closure lasting more than two hours, and the provision of bottled water and portable toilets on site for stranded motorists during any bridge closure lasting more than two hours.

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8. **Construction Responsibilities;**

Caltrans, in accepting the benefits of CDP 1-11-039, agrees and accepts the following:

(A) Caltrans shall ensure that the relevant bidding documents and eventual contract include: a) sufficient and accurate provisions for Caltrans to ensure the obligation of the winning bidder to comply with all of the conditions of CDP 1-11-039 and to construct the project in accordance with the proposed and approved project description; and b) the specific requirement that the contractor and any employees, subcontractors, agents, or other representatives of the contractor or contractors who are responsible for constructing any portion of the project, shall undertake all related activities in full compliance with the project approved pursuant to CDP 1-11-039, including all terms and conditions imposed by the Commission in approving the permit. It shall be Caltrans' responsibility to ensure that the bidding documents contain general and special provisions necessary to fully and accurately incorporate all requirements imposed by the Commission or other state or federal agencies with regulatory authority over the project, including timelines for review of documents and other potentially limiting measures that may affect construction scheduling and the timing of construction or other parameters of material interest to the participating parties. It shall also be Caltrans' responsibility to ensure that the winning bid for the construction of the proposed project is adequate to ensure that the selected contractor has taken into consideration and provided for the full cost of compliance with all requirements imposed by the Commission pursuant to the Commission's approval of CDP 1-11-039. A copy of the adopted findings for CDP 1-11-039 shall be attached to the bidding documents by Caltrans for reference by potential bidders; and

(B) After the contract is awarded, Caltrans shall ensure that the contractor(s), subcontractor(s), or other parties selected by Caltrans or otherwise designated to implement any portion of the project approved pursuant to CDP No. 1-11-039, including but not limited to such activities as vehicle re-fueling near coastal waters, are fully informed of, and continuously comply with, the obligations established through the provisions of the approved permit, including all standard and special conditions and the requirements of all final plans approved in accordance with the pertinent special conditions. Nothing in these provisions shall prevent the Commission from taking enforcement action against the contractor or subcontractor(s) for non-compliance with the terms and conditions of CDP 1-11-039, either individually or in addition to enforcement action against Caltrans for such non-compliance; and

(C) All activities associated with performing the development authorized pursuant to CDP 1-11-039 shall at all times be undertaken in full accordance with the terms and conditions imposed by the Commission in conditionally approving CDP 1-11-039. It shall be Caltrans' responsibility to ensure such compliance by any party to whom Caltrans assigns the right to construct or undertake any part of the activities authorized herein; this requirement does not relieve other parties of responsibility

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for compliance with the permit or immunize such parties from enforcement action by the Coastal Commission's enforcement program.

9. **Assumption of Risk**

By acceptance of Commission approval of CDP 1-11-039, Caltrans acknowledges and agrees: that the Klamath River Bridge, including the bridge as repaired by the subject three hinge replacements and new segments of bridge and bridge surface treatments, may be subject to hazards from seismic events, tsunamis, liquefaction, storms, floods and erosion; (ii) to assume the risks to employees and assigns of Caltrans, including contractors and subcontractors and their officers, agents, and employees, and to the public utilizing the proposed project during and after construction, and to the property that is the subject of this permit of injury and/or damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense against such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards. Subject to acceptance of Changes herein.

10. **Permit Expiration and Condition Compliance**

Because some of the proposed development has already commenced, this coastal development permit shall be deemed issued upon the Commission's approval and will not expire. Failure to comply with the special conditions of this permit may result in the institution of an action to enforce those conditions under the provisions of Chapter 9 of the Coastal Act.

11. **Project Activity Limitations, Schedule, Biological Monitoring Plan**

Not Feasible. See hereinafter & attached. Also, not consistent with agreement at Feb 9, 2012 Commission meeting

(A) Demolition activities (such as striking the existing bridge structure with a hoe ram or crane extension) shall only be undertaken when the location of the demolition point of impact on the structure is at least 140 feet from the nearest location of the wetted channel of the river, or in the case of demolition at Hinge 8, when the waters of the wetted channel are no closer to Hinge 8 than Pier 8. Otherwise, the pertinent setback distance shall be determined in the field as follows: From the closest point of the pertinent hinge repair area to the river, find the closest vertical bridge support (pier) toward the wetted channel; then find the point where that pier intersects the ground beneath the bridge; from the point of pier intersection with the ground at the edge of the pier closest to the river, measure horizontally to the nearest edge of the wetted channel. For purposes of this condition, the wetted channel shall be defined as the point where the waters of the river have reached the highest elevation during the previous 24 hours. This distance shall be maintained at a minimum of approximately 140 linear feet (pier to channel, as described herein). The elevation of the active channel may be lower (further from) this point at any given time due to

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the continuous fluctuations of tidal influence on the river elevations and the influence of seasonally fluctuating watershed hydrology; however, the controlling measurement remains the location of the wetted channel closest to the demolition site on a 24-hour basis. The pertinent measurements shall be made under the supervision of the Caltrans biological monitor, and recorded in the biological monitoring reports and in the permanent project records of the resident engineer.

(B) Demolition activities shall be limited to daylight hours and weather conditions permitting visual monitoring of the Klamath River for a minimum distance of 300 feet up and down river, as measured from the nearest edge of the bridge deck. A qualified biologist shall be on site continuously to monitor riverine habitat during all demolition activities deploying impact/battering or other sound-pressure-generating techniques. The monitor shall request, and the Caltrans site supervisor shall ensure that noise-generating activities stop immediately if marine mammals enter the 300-foot area up or downstream from the bridge. Once stopped, project activities shall not re-commence until marine mammals have moved more than 300 feet from the bridge deck, or as otherwise authorized by a NOAA Fisheries biologist, and in consultation with the Executive Director. The biological monitor shall log all marine mammal sightings and behavioral observations, and provide weekly copies of the daily biological monitoring logs to the Executive Director and to NOAA Fisheries and other agencies requesting copies.

(C) Activities undertaken within the floodplain of the river shall be limited to June 15 – October 15, annually, except as provided in Section (D) below. Hinge repair shall be undertaken one hinge location per season, commencing with Hinge 8 repairs on the north side of the bridge in the first construction year (2013), followed by Hinge 11 repairs in the second construction season (2014), and finally by Hinge 2 repairs on the south side of the bridge during the third construction season (2015). Vegetation removal, grading, or other site disturbance shall be limited to the work area associated with the forthcoming season's repairs only (multiple hinge work areas shall not be cleared or graded in advance).

See Attachment and note start of construction year depends on permit amendment date & conditions

(D) Excepted activities that may be undertaken within the floodplain outside of the June 15 – October 15 time period shall be limited to:

1. February 1 – March 1 for site preparation such as vegetation removal that does not require grading, and the placement of bird/bat exclusion measures annually;
2. June 15-Nov.15 annually for placement of deck sealant, with a 3-day dry weather forecast commencing from the date of sealant application, or as may be extended by the Executive Director for cause;
3. October 16 – June 15 annually, erosion control and revegetation measures that must be undertaken during the rainy season.

(E) **Prior to commencement of construction,** Caltrans shall submit a plan for biological monitoring by a Caltrans biologist or a qualified biologist retained by

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Caltrans (not retained by the Contractor), subject to the review and approval of the Executive Director. The monitoring plan shall include the monitoring schedule, logging and reporting provisions, and other measures necessary by the Executive Director, to ensure that project activities that may affect environmentally sensitive habitat areas and/or water quality are adequately monitored for compliance and for the purpose of identifying adaptive management measures for real-time resolution of compliance concerns that may arise during construction.

STATE OF CALIFORNIA - NATURAL RESOURCES AGENCY EDMUND G. BROWN JR., *Governor*

CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
710 E STREET, SUITE 200
EUREKA, CA 95501
(707) 445-7833 FAX (707) 445-7877

CORRECTED

AMENDMENT TO COASTAL DEVELOPMENT PERMIT

Date: **December 6, 2012**

Permit Application No.:**1-11-039-A1**

Issued to:

California Department of Transportation
Attn: Kevin Church, Project Manager

for:

Replacing three bridge hinges (Hinges 2, 8 and 11) on the Klamath River Bridge (Bridge #1-28).

at:

U.S. Highway 101 bridge over the Klamath River, 20 miles south of Crescent City, Del Norte County

has been amended to include the following changes:

Modify Special Conditions 1, 2, 3, 5, 6, 8 and 11 regarding erosion controls, water quality, hydroacoustic monitoring, construction protocols, and bird and bat protection.

This amendment will become effective upon return of a signed copy of this form to the North Coast District Office. Please note that the original permit conditions are still in effect.

Sincerely,

CHARLES LESTER
Executive Director

By: **James Baskin**
Coastal Program Analyst

ACKNOWLEDGMENT

I have read and understand the above amendment and agree to be bound by its Conditions and the remaining conditions of Permit No: **1-11-039-A1**

Date: Dec 6, 2012 Signature: _____

STANDARD CONDITIONS:

1. **Notice of Receipt and Acknowledgment.** The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. **Expiration.** If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. **Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.

4. **Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

SPECIAL CONDITIONS:

1. **Construction Standards & Responsibilities.** Construction-related standards and responsibilities shall include, but shall not be limited to, the following requirements and best management practices (BMPs):

   (A) The repair activities authorized by CDP 1-11-039 shall be undertaken between June 15 through October 15 annually, except as otherwise specified in the special conditions of CDP 1-11-039, and in accordance with the following requirements:

      1. Hinges 8 and 11, located on the north end of the Klamath River Bridge, shall be repaired during the first construction season commencing June 15, 2013 and ending October 15, 2013 as proposed by Caltrans; Hinge 2 on the south end of the Klamath River Bridge, shall be repaired during the June 15 – October 15 work windows of 2014;

      2. All proposed and approved revegetation measures shall be implemented no later than the end of the rainy season of the year following the repair of each hinge; and

      3. Erosion control re-seeding with approved mix shall be implemented immediately following site disturbance each season to stabilize and

condition soils in preparation for the following year's restoration plantings; and

4. Night lighting shall be restricted to the end of the bridge where hinge replacement activities are underway, but lighting may also be used in the approved staging areas as needed, at the traffic control and flagging locations, traffic personnel stations, and at public service areas for waiting motorists and site personnel, and all lighting shall be minimized, shielded, and directed downward and away from sensitive habitat areas including occupied nests on the bridge and previously identified bat roosting locations and riparian corridor habitat outside of the active work area to the extent possible consistent with safety and adequate work progress; and

5. Refueling where spillage could reach the active channel, percussive demolition activities, or placement of wet construction materials with the potential to spill or run off into the active channel, shall not be undertaken during rainy weather or fog, or at night due to visibility limitations that would compromise adequate site monitoring or the implementation of emergency response measures; and

6. Disturbance associated with vegetation removal, grading, placement of bird/bat exclusion measures, demolition, or other construction-related activities shall be limited to the authorized active repair area of the subject bridge for that season except as otherwise specified herein; and

7. Site preparation activities such as vegetation removal and the placement of exclusion measures on the bridge that must be completed before nesting season commences may be undertaken prior to the annual construction season commencing on June 15, and shall be undertaken under the direct, continuous supervision of a qualified Caltrans biologist; and

(B) Bird and bats exclusion measures shall be installed on the bridge between February 1, or earlier as provided for under this permit amendment authorization (i.e., prior to the Executive Director's approval of a final erosion control and water quality protection plan), and April 1 prior to the forthcoming construction season commencing June 15 of that year, and shall be placed only on the end of the bridge subject to hinge repair during the forthcoming construction season. Exclusion measures shall be removed completely at the end of the pertinent season's construction activities or by October 15, whichever occurs first.

(C) **Prior to the commencement of construction**, the limits of the work areas and staging areas shall be delineated in cooperation with a qualified Caltrans biologist, limiting the potential area affected by construction and minimizing impacts to wetlands and other ESHA during construction. All vehicles and equipment shall be restricted to pre-established work areas and established or designated staging areas.

(D) All motorized equipment used at the project site shall be maintained in proper working condition and shall be free of drips and leaks of coolant and petroleum products.

(E) A spill prevention and clean-up kit shall be available on-site for immediate use in case of an accidental spill. Equipment or vehicles operated adjacent to or on the bridge deck above the Klamath River shall be limited to those immediately necessary to complete project work, and shall be checked and maintained daily to prevent leaks.

(F) On-site refueling activities that pose a risk of fuel spill to coastal waters shall be limited to heavy equipment on the bridge such as cranes that cannot be readily relocated for fueling and to equipment that must be lowered to the work area by crane (such as bobcat, excavator, or fork-lift), and shall be subject to the following requirements:

1. Refueling activities shall be limited to daylight hours and weather conditions with sufficient visibility to ensure visual contact between the valve operator and the operator of the fuel discharge connection device; and

2. An additional worker shall be stationed at the shutoff valve at all times during refueling; and

3. The hose nozzle shall be contained in a bucket or other containment device when being moved between the fuel truck and the equipment to be refueled; and

4. Absorbent pads shall be placed beneath the fill tube and fuel tank to catch any drips or spilled fuel; and

5. Spill kits shall be maintained in close proximity to the refueling locations and shall be employed immediately in the event of a fuel spill.

(G) All trash and debris shall be disposed in the proper trash and recycling receptacles at the end of every construction day and in a manner that prevents access by wildlife.

(H) The applicant shall provide adequate disposal facilities for solid waste, including excess concrete, asphalt and paint scrapings, and other demolition or day-to-day construction wastes, which shall be stored separately from any lead or other contaminated soils or debris designated for hazardous waste disposal. Hazardous wastes shall be clearly marked and staged for proper removal and disposal within the staging areas away from the river, or elsewhere outside of the coastal zone

where approved and permanently documented in the project files by the Caltrans resident engineer in charge of the project.

(I) Debris shall be disposed of at a legal disposal site or recycled at a recycling facility. If the disposal site is located in the coastal zone, a coastal development permit or an amendment to this permit shall be required before disposal can take place unless the Executive Director determines that no amendment or new permit is legally required; if the disposal location is outside of the coastal zone, the Caltrans resident engineer responsible for the project shall document in the permanent project records that the contractor has disposed of the debris or other construction wastes at a properly licensed disposal site or recycling facility.

(J) All stock piles of debris shall be covered, enclosed on all sides, shall be located as far away from the river or tributaries to the river as possible, and shall not be stored in contact with the soil and all construction materials shall be stored within the project area in a manner that protects soils within the work areas, and the waters of the river, from discharge.

(K) Machinery and equipment shall be maintained and washed off-site in confined areas specifically designed to control runoff. The applicant shall store, utilize, and dispose of thinners and solvents or other chemicals used in project activities in a manner that is consistent with applicable local, state, and/or federal laws and, under no circumstances shall they be discharged into coastal waters, or into septic, sanitary or storm sewer systems.

(L) The discharge of any hazardous materials into any receiving waters shall be prohibited. Concrete or other construction substance washouts shall not be undertaken at any location where runoff or rinsate may reach coastal waters. The Caltrans monitoring biologist and resident engineer shall identify and document in the permanent construction records the appropriate use of suitable facilities for these purposes.

(M) No fill of wetlands is authorized by this permit except as specified for temporary pad construction and for restorative grading for the purpose of site restoration after repairs are completed; no construction or fill, access by materials or equipment, or other discharge of any material within the waters of the Klamath River is authorized by this permit approval.

(N) Adequate stocks of stormwater runoff and erosion control barrier materials shall be kept onsite and made available for immediate use. Appropriate erosion, sedimentation, and runoff control devices shall be installed around all work areas and staging areas **prior to commencement of construction** and shall be maintained throughout the duration of construction activities, and inspected weekly by a Caltrans biologist, in addition to other inspections that may be routinely made by Caltrans or the Caltrans contractor, with inspection results included in the biologists' monitoring logs.

(O) If rainfall is forecast during the time construction activities are being performed, any exposed soil areas shall be promptly mulched or covered with plastic sheeting and secured with sand bagging or other appropriate materials before the onset of precipitation;

(P) Any and all debris resulting from demolition or construction activities, and any remaining construction material, shall be removed from the project site within 24 hours of completion of the project. Any debris accidentally discharged into coastal waters shall be recovered immediately and disposed of properly.

(Q) Best Management Practices (BMPs) and Good Housekeeping Practices (GHPs) designed to prevent spillage and/or runoff of demolition or construction-related materials, and to contain sediment or contaminants associated with demolition or construction activity, shall be implemented prior to the on-set of such activity.

(R) Upon completion of construction activities and prior to the onset of the rainy season, all disturbed areas shall be restored in accordance with the requirements specified in the approved plan required pursuant to Special Condition No. 2.

(S) Demolition activities relying on percussive impact techniques (such as battering with a hoe ram) shall be limited to daylight hours and weather conditions permitting visual monitoring of the Klamath River for a minimum distance of 300 feet up and down river, as measured from the nearest edge of the bridge deck. A qualified Caltrans biologist shall be on site continuously to monitor riverine habitat during all demolition activities deploying percussive techniques. The monitor shall direct that the Caltrans site supervisor stop work immediately if marine mammals are present, and demolition activities shall not re-commence until marine mammals have moved more than 300 feet from the bridge deck, or as otherwise authorized by a NOAA Fisheries biologist, and with the consent of the Executive Director. The biological monitor shall log all marine mammal sightings and behavioral observations, and provide weekly copies of the daily biological monitoring logs to the Executive Director and to NOAA Fisheries and other agencies requesting copies.

(T) Prior to the commencement of the bridge repair activities authorized by this permit, the permittee shall ensure that all on-site workers and contractors understand and agree to observe the standards for work outlined in this permit and in the detailed project description included as part of the application submittal and as revised by these conditions.

2. Final Erosion Control and Water Quality Protection Plan.

(A) **Except as otherwise provided for herein,** (i.e, cutting of vegetation necessary for clearing and access to the hinge repair site(s) for the first construction season subject to specified slope stability and erosion control mitigation measures, installation of bird and bat protective measures), **prior to commencement of construction**, Caltrans shall submit for the review and approval of the Executive

Director, a final Erosion Control and Water Quality Protection Plan based on: (a) the preliminary conceptual erosion control plan prepared by the Caltrans North Region Division of Landscape Architecture in a Caltrans Memorandum dated August 19, 2010 prepared by the North Region Division of Landscape Architecture and in accordance with the "Water Quality Assessment" dated August 10, 2010 prepared by Miguel Villicana, Caltrans NPDES Storm Water Coordinator, North Region Office of Environmental Engineering; (b) with the project description components and mitigation measures included in the "Erosion Control, Grading, Drainage and Water Pollution Control Plan dated September 20, 2011 prepared by Todd Lark, Project Engineer (See Exhibit 6 of original Coastal Development Permit No. 1-11-039); and (c) the project revisions set forth in the revised amended project description, dated September 19, 2012. The final plan shall be prepared by a licensed civil engineer with substantial training and experience in erosion control and water quality engineering principles and practices. The final plan shall additionally incorporate all of the pertinent requirements of Special Condition 1 set forth above, and shall include the requirement that an as-built plan showing all post-construction Best Management Practices implemented at the end of the final construction season be submitted to the Executive Director within thirty (30) days after completion or by November 15 of the final construction year. The required final report shall additionally document the stabilization of all disturbed soil areas, the backfilling and recontouring of excavation areas to return the areas to pre-project conditions, and the removal of all temporary BMPs from the project site, as proposed in the approved plan. If the report documents that any of the BMP measures identified in the plan failed to meet the objectives of stabilizing soils and returning disturbed areas to pre-project conditions following completion of construction, the permittee shall submit a revised or supplemental site-specific erosion and sediment control plan to compensate for those portions of the original plan that did not meet the post-construction plan objectives. Water quality (SWPPP or other) inspection reports shall be made timely available to Commission staff upon request.

(B) All project activities shall be conducted in accordance with the final Erosion Control and Water Quality Protection Plan approved by the Executive Director. Any changes to the final plan shall require an amendment of CDP 1-11-039 unless the Executive Director determines that no amendment is legally required.

3. **Revegetation and Monitoring Plan.**

(A) All project activities shall be undertaken in accordance with the "Klamath River Bridge Hinge Replacement Project Revegetation, Mitigation and Monitoring Plan" dated November 2011, and attached hereto as Exhibit 4, subject to the following changes which shall be incorporated into a final plan submitted for the review and approval of the Executive Director **prior to commencement of construction**:

- Both the plant palette and planting plan (Appendix A), and the success criteria should be organized according to revegetation areas. The quantity of plants, for example, should be specified for each area.
- More than one habitat type is specified for most areas. If these habitat areas are not coextensive, then the actual mosaic of habitats should be shown as polygons on a map.
- Rather than expressing success criteria in terms of percent survival, express these criteria as the actual number of plants that are to be present. This will automatically include any natural recruitment.
- Success criteria should include criteria for percent ground cover for each vegetation stratum.
- The success criterion for exotic species should be no more than 10% absolute cover rather than relative cover.
- Coyote bush should be removed from the planting palette for Hooker's Willow Riparian habitat or ecologically justified.
- Add the following language: "Final monitoring for success shall take place after 5 years or after 3 years with no remediation or maintenance other than weeding, whichever is longer."
- Add the following language: "If the final report indicates that the restoration project has been unsuccessful, in part or in whole, based on the approved success criteria, the permittee shall submit within 90 days a revised or supplemental restoration program to compensate for those portions of the original program which did not meet the approved success criteria. The revised restoration program shall be processed as an amendment to the coastal development permit unless the Executive Director determines that no permit amendment is legally required.

(B) Upon submittal of the final monitoring report, pursuant to the final revegetation, mitigation, and monitoring plan approved by the Executive Director, the Executive Director shall determine whether the restoration project has been successful, in part or in whole, based on the approved success criteria. If the Executive Director determines that the restoration project has been unsuccessful, the permittee shall submit within ninety (90) days a revised or supplemental restoration program to compensate for those portions of the original program which did not meet the approved success criteria. The revised restoration program shall be processed as an amendment to the coastal development permit unless the Executive Director determines that no permit amendment is required.

(C) Any changes to the approved "Klamath River Bridge Hinge Replacement Project Revegetation, Mitigation and Monitoring Plan" shall require an amendment to CDP 1-11-039, unless the Executive Director determines that no amendment is legally necessary.

4. **Protection of Archaeological Resources**

(A) A monitor from the Yurok Tribe shall be present during all earth moving operations. If an area of historic or prehistoric cultural resources or human remains are discovered during the course of the project, all construction shall cease and shall not recommence except as provided in subsection (B) hereof, and a qualified cultural resource specialist shall analyze the significance of the find.

(B) A permittee seeking to recommence construction following discovery of the cultural deposits shall submit an Archaeological Plan for the review and approval of the Executive Director.

1. If the Executive Director approves the Archaeological Plan and determines that the Archaeological Plan's recommended changes to the proposed development or mitigation measures are *de minimis* in nature and scope, construction may recommence after this determination is made by the Executive Director. The Executive Director shall consider among other things, any additional excavation or grading necessary to recover or otherwise protect the discovered cultural deposits would be performed beyond the disturbance area footprint of the approved project, in making such a determination.

2. If the Executive Director determines that the changes to the proposed development or mitigation measures necessary to undertake the proposed Archaeological Plan are not *de minimis*, construction shall not recommence until after an amendment to this permit is approved by the Commission.

(C) The applicant, in preparing construction bidding documents for the subject project, shall include provisions requiring bidders to acknowledge and address potential construction schedule delays that may arise if discovery of cultural resources occurs during project activities. In accepting Coastal Development Permit 1-11-039, the applicant acknowledges and agrees that Caltrans/contractor project delivery schedules may be delayed to process an amendment made necessary by the discovery of historic or cultural resources during project activities.

5 Hydroacoustic Impact Limits and Monitoring for Demolition of Hinge 8.

A. Demolition activities at Hinge 8 (location generally shown in Exhibit 3 of the staff report dated January 26, 2012) authorized by CDP 1-11-039 shall not produce sound exposure or sound pressure levels within the waters of the Klamath River in excess of either component of the dual metric exposure criteria listed below. Sonic energy produced by strikes of the hoe ram or other impact-based demolition equipment deployed during the subject activities shall be measured, and logged by the hydroacoustic monitor and retained in the permanent project records.

B. By January 1, 2013, or within such additional time as the Executive Director may authorize for cause, Caltrans shall submit a Final Hydroacoustic Monitoring Plan for

Bridge Demolition (hereinafter, "Final Plan") to the Executive Director for review and approval. The Final Plan shall be based upon the protocols and criteria presented in the preliminary "United States Route 101 Klamath River Bridge Hinge Repair Project Hydroacoustic Monitoring Plan," as prepared by ICF International, dated June 26, 2012, as further modified by the additional information requirements and refinements set forth in this Special Condition. Demolition shall not commence until the Executive Director has approved the Final Plan incorporating any changes that the Executive Director may further require, and the hydroacoustic monitoring program required by the Final Plan is fully implemented. The Final Plan shall be structured on the following dual-metric noise exposure criteria:

Sound Exposure Level - Accumulated ($SEL_{cumulative}$): The $SEL_{cumulative}$ threshold shall be defined as an accumulated Sound Exposure Level at or above 183 dB re one micropascal squared-second based on real-time hydroacoustic monitoring methods set forth in the Hydroacoustic Monitoring Plan.

Peak Sound Pressure Level (SPL): Peak Sound Pressure Level shall be defined as the peak sound pressure level at or above 206 dB re one micropascal resulting from the hoe ram striking the bridge structure, based on real-time hydroacoustic monitoring as set forth in the Hydroacoustic Monitoring Plan.

C. At a minimum the Final Plan shall include the following:

1. A Caltrans employee authorized to direct the contractor undertaking demolition shall be on site during all demolition activities. Active demolition shall not commence until hydroacoustic monitoring personnel and equipment are deployed in accordance with the requirements of the final approved Plan and the Caltrans biological monitor is on-site and has verified that the hydroacoustic monitoring program is ready to commence. All demolition activities associated with the demolition of the first complete half width of Hinge 8 that may produce sound exposure or sound pressure levels within the water column of the Klamath River shall only be undertaken at Hinge 8 while hydroacoustic monitoring is continuously undertaken.

2. In the event of an exceedance of either criterion of the dual-metric exposure criteria, all pertinent demolition operations shall be immediately stopped and shall not recommence unless the Executive Director, in consultation with the fisheries biologists of the California Department of Fish & Game and the National Marine Fisheries Service so authorizes based on the resumption of hydroacoustic monitoring of all pertinent demolition operations and the deployment of additional sound attenuation or other measures deemed likely by qualified technical experts to return the demolition operations to conformance with the duel-metric exposure criteria;

3. If the return to demolition operations after the implementation of the additional measures discussed in Subparagraph (2) above results in an

exceedance of either criterion of the dual metric exposure criteria, demolition operations shall be stopped immediately and shall not re-commence until or unless the Commission approves a further amendment to CDP 1-11-039 that proposes substantial changes to the proposed project that are deemed by the Executive Director to offer a high likelihood of success in preventing further exceedance of the dual metric exposure criteria.

4. Hydroacoustic monitoring shall be implemented during all active demolition activities associated with the demolition of the first complete half width of Hinge 8, however activities that support demolition but could not transmit sound through the bridge structure or substrate (such as staging, grading, equipment setup) may be undertaken without hydroacoustic monitoring; and

5. The Final Plan shall describe a program of hydroacoustic monitoring capable of continuous assessment of the compliance of pertinent Hinge 8 demolition activities with the dual metric exposure criteria set forth above, including the plan for, and maps of, proposed hydrophone and personnel deployment, specified fixed and mobile locations for hydrophone placement (which shall include locations across a proposed transect at specified representative distances on the north, south and mid-river areas, as well as randomized mobile locations) and at a representative and adequate selection of locations up and down-river from the bridge crossing of the river. A minimum of four fixed monitoring positions shall be established. One fixed position shall be situated beneath the bridge in proximity to Pier 8, and three other fixed stations shall be established at 150-foot distances from the Pier 8 station, one longitudinally and southward along the bridge alignment, and two each laterally up and down river perpendicular to the Pier 8 station, as generally depicted on Figure 2 of the preliminary hydroacoustic monitoring plan. The monitoring shall be conducted pursuant to the protocols and criteria contained in the approved final plan on a real-time basis, including documentation of the number, location, distances, and depths of hydrophones (which shall be located in waters of at least one meter in depth), and associated monitoring equipment and personnel, the method of translating monitoring data into real-time direction, and the method of conveying critical data to the Caltrans site supervisor; and

6. Provide for continuously real-time, hydrophone-based monitoring of demolition "strikes" utilizing solid state recording and integrating sound level metering, and digital analyzer technologies. The monitoring metrics shall include the length of time of any cessation of demolition within a work day, the peak sound pressure and other measures of sound energy, or other information necessary to assess conformance with the dual metric criteria set forth above, and to otherwise adequately implement the Plan; and

7. Provide for daily logging of the hydroacoustic monitoring results by the Caltrans biological monitor, and daily submittal of summary reports to the Executive Director for the first week of demolition and weekly thereafter, unless non-compliance occurs or the Executive Director requests a different notification schedule. Non-compliance shall be reported immediately to the site supervisor, to the biological monitor and to the Executive Director. Any exceedance of the dual metric criteria shall be logged in the permanent project records, and in the biological monitoring reports; and

8. Provide procedures and contact information for notifying all pertinent parties of any failure to comply with the limits of the dual metric criteria, including the requirement that work stop immediately and not resume until the Executive Director authorizes resumption of work or until a further amendment of CDP 1-11-039 is authorized by the Commission, unless the Executive Director determines that no amendment is legally required; and

9. Provide for submittal to the Executive Director of a final written hydroacoustic monitoring report prepared by the consulting acoustician within thirty (30) days after completion of Hinge 8 demolition. The report shall include but is not limited to the providing the hydrological monitoring data, any changes or problems with the field monitoring Plan, compliance with the dual metric criteria set forth above, and description of and assessment of efficacy of any adaptive measures that were implemented in the demolition activities as the result of the monitoring, or of any field adjustments of the monitoring Plan itself. The final report shall include an assessment of the monitoring plan and recommendations for changes or additions to future monitoring efforts. The final plan shall compare the predicted acoustic impacts of the Hinge 8 demolition with the actual measurements taken during the demolition activities. The report shall include a reconciliation of these comparative modeled and measured sound levels and recommendations for adaptation and/or improvement of future demolition modeling efforts, if applicable.

(C) Project activities shall be conducted at all times in accordance with the provisions of the final approved Plan and in accordance with any additional plan(s) for hydroacoustic monitoring that the Executive Director may require and authorize pursuant to the provisions of this special condition. Any proposed changes to the final approved Plan(s) shall be reported to the Executive Director. No changes to the final approved Plan(s) shall occur without an amendment to CDP 1-11-039 unless the Executive Director determines that no amendment is legally required.

6. Bird and Bat Exclusion and Protection Plan.

(A) All project activities shall be undertaken in accordance with the "Bird and Bat Exclusion and Protection Plan for the Klamath River Bridge Hinge Replacement

Project" dated December 2011, submitted by Caltrans on December 15, 2011 attached hereto as Exhibit 5 and as required herein.

(B) All bird and bat exclusion measures selected shall be pre-approved and installed under the supervision of a qualified Caltrans biologist between February 1, or earlier as provided for under this permit amendment authorization (i.e., prior to the Executive Director's approval of a final erosion control and water quality protection plan pursuant to Special Condition No. 2), and April 1 annually, and shall be limited to the location of the single hinge area scheduled for repair during the following construction season. Exclusion measures shall be removed upon completion of that season's construction activities or by October 15, whichever occurs first. All exclusion measures shall be checked daily for the first three days after initial installation, by a qualified Caltrans biologist, to ensure performance of the measure, and to ensure that no entrapment of birds or bats has occurred. If the measures are not performing adequately, or entrapment occurs, removal and release of trapped birds or bats shall be undertaken immediately by a qualified Caltrans biologist, and necessary repairs or adjustments implemented and monitored daily for an additional three days. The exclusion measures shall thereafter be inspected at least weekly, and shall be timely adjusted or repaired and replaced as necessary under the supervision of a qualified Caltrans biologist as needed to protect wildlife. During construction activities taking place near the exclusion areas, exclusion measures shall be adjusted to clear the area where demolition will remove a portion of the bridge and the areas of the bridge on each side of the demolition location will remain subject to exclusion measures until demolition is completed. The exclusion measures shall be checked daily by a Caltrans biologist during the active demolition and at least weekly thereafter until removed.

7. **Evidence of Final State and Federal Authorizations and Approvals; Notifications of Bridge Closures**

(A) **Prior to commencement of construction**, Caltrans shall submit evidence to the satisfaction of the Executive Director (including copies of the pertinent final documents) that final approvals or authorizations of all state and federal agencies with review authority over the subject project have been received by Caltrans, including but not limited to authorizations by the California Department of Fish and Game, State Lands Commission, NOAA Fisheries, Yurok Tribal Water Quality Division, and the Army Corps of Engineers. The applicant shall inform the Executive Director of any changes to the project required by any state or federal agency. Such changes shall not be incorporated into the project unless the applicant obtains a coastal development permit amendment; unless the Executive Director determines that no amendment is legally required.

(B) Caltrans shall ensure that public notification or road closures shall be undertaken in accordance with the plan submitted by Caltrans on January 19, 2011, including the provision of such notice not less than two weeks before any bridge closure lasting more than two hours, and the provision of bottled water and portable toilets on site

for stranded motorists during any bridge closure lasting more than two hours.

8. **Construction Responsibilities:**

Caltrans, in accepting the benefits of CDP 1-11-039, agrees and accepts the following:

(A) Caltrans shall ensure that the relevant bidding documents and eventual contract include: a) sufficient and accurate provisions for Caltrans to ensure the obligation of the winning bidder to comply with all of the conditions of CDP 1-11-039 and to construct the project in accordance with the proposed and approved project description; and b) the specific requirement that the contractor and any employees, subcontractors, agents, or other representatives of the contractor or contractors who are responsible for constructing any portion of the project, shall undertake all related activities in full compliance with the project approved pursuant to CDP 1-11-039, including all terms and conditions imposed by the Commission in approving the permit. It shall be Caltrans' responsibility to ensure that the bidding documents contain general and special provisions necessary to fully and accurately incorporate all requirements imposed by the Commission or other state or federal agencies with regulatory authority over the project, including timelines for review of documents and other potentially limiting measures that may affect construction scheduling and the timing of construction or other parameters of material interest to the participating parties. It shall also be Caltrans' responsibility to ensure that the winning bid for the construction of the proposed project is adequate to ensure that the selected contractor has taken into consideration and provided for the full cost of compliance with all requirements imposed by the Commission pursuant to the Commission's approval of CDP 1-11-039. A copy of the adopted findings for CDP 1-11-039 shall be attached to the bidding documents by Caltrans for reference by potential bidders; and

(B) After the contract is awarded, Caltrans shall ensure that the contractor(s), subcontractor(s), or other parties selected by Caltrans or otherwise designated to implement any portion of the project approved pursuant to CDP No. 1-11-039, including but not limited to such activities as vehicle re-fueling near coastal waters, are fully informed of, and continuously comply with, the obligations established through the provisions of the approved permit, including all standard and special conditions and the requirements of all final plans approved in accordance with the pertinent special conditions. Nothing in these provisions shall prevent the Commission from taking enforcement action against the contractor or subcontractor(s) for non-compliance with the terms and conditions of CDP 1-11-039, either individually or in addition to enforcement action against Caltrans for such non-compliance; and

(C) All activities associated with performing the development authorized pursuant to CDP 1-11-039 shall at all times be undertaken in full accordance with the terms and conditions imposed by the Commission in conditionally approving CDP 1-11-039. It

shall be Caltrans' responsibility to ensure such compliance by any party to whom Caltrans assigns the right to construct or undertake any part of the activities authorized herein; this requirement does not relieve other parties of responsibility for compliance with the permit or immunize such parties from enforcement action by the Coastal Commission's enforcement program.

9. Assumption of Risk

By acceptance of Commission approval of CDP 1-11-039, Caltrans acknowledges and agrees: that the Klamath River Bridge, including the bridge as repaired by the subject three hinge replacements and new segments of bridge and bridge surface treatments, may be subject to hazards from seismic events, tsunamis, liquefaction, storms, floods and erosion; (ii) to assume the risks to employees and assigns of Caltrans, including contractors and subcontractors and their officers, agents, and employees, and to the public utilizing the proposed project during and after construction, and to the property that is the subject of this permit of injury and/or damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense against such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

10. Permit Expiration and Condition Compliance

Because some of the proposed development has already commenced, this coastal development permit shall be deemed issued upon the Commission's approval and will not expire. Failure to comply with the special conditions of this permit may result in the institution of an action to enforce those conditions under the provisions of Chapter 9 of the Coastal Act.

11. Project Activity Limitations, Schedule, Biological Monitoring Plan.

(A) Demolition activities shall be limited to daylight hours and weather conditions permitting visual monitoring of the Klamath River for a minimum distance of 300 feet up and down river, as measured from the nearest edge of the bridge deck. A qualified biologist shall be on site continuously to monitor riverine habitat during all demolition activities deploying impact/battering or other sound-pressure-generating techniques. The monitor shall request, and the Caltrans site supervisor shall ensure that noise-generating activities stop immediately if marine mammals enter the 300-foot area up or downstream from the bridge. Once stopped, project activities shall not re-commence until marine mammals have moved more than 300 feet from the bridge deck, or as otherwise authorized by a NOAA Fisheries biologist, and in consultation with the Executive Director. The biological monitor shall log all marine mammal sightings and behavioral observations, and provide

weekly copies of the daily biological monitoring logs to the Executive Director and to NOAA Fisheries and other agencies requesting copies.

(B) Activities undertaken within the floodplain of the river shall be limited to June 15 – October 15, annually, except as provided in Section (D) below. Hinge repair shall be undertaken pursuant to the following schedule:

Hinges 8 and 11: Concurrently, during the first (2013) construction season.

Hinge 2: During the second (2014) construction season.

Vegetation removal, grading, or other site disturbance shall be limited to the work area associated with the forthcoming season's repairs only.

(C) Excepted activities that may be undertaken within the floodplain outside of the June 15 – October 15 time period shall be limited to:

1. February 1 – March 1 for site preparation such as vegetation removal that does not require grading. The cutting of vegetation necessary for clearing and access to the hinge repair site(s) for the first construction season, to be retained in place for slope stability and erosion control mitigation pursuant to Special Condition 12(b), may be conducted prior to the February 1 to March 1 site preparation time period and Executive Director approval of a final erosion control and water quality protection plan pursuant to Special Condition No. 2;

2. February 1 – April 1 for the placement of bird/bat exclusion measures annually;

3. June 15 – Nov.15 annually for placement of deck sealant, with a 3-day dry weather forecast commencing from the date of sealant application, or as may be extended by the Executive Director for cause; and

4. October 16 – June 15 annually, erosion control and revegetation measures that must be undertaken during the rainy season.

(D) **Prior to commencement of construction,** Caltrans shall submit a plan for biological monitoring by a Caltrans biologist or a qualified biologist retained by Caltrans (not retained by the Contractor), subject to the review and approval of the Executive Director. The monitoring plan shall include the monitoring schedule, logging and reporting provisions, and other measures necessary to ensure that project activities that may affect environmentally sensitive habitat areas and/or water quality are adequately monitored for compliance and for the purpose of identifying adaptive management measures for real-time resolution of compliance concerns that may arise during construction.

12. Interim Slope Stability, Erosion Control and Water Quality Protective Measures. The following hinge repair-related work tasks shall be subject to specific slope stability, erosion control, and water quality protective measures:

(A) On-bridge Parking of Construction Supervisorial Vehicles:

1. Parking shall be restricted to designated parking areas.
2. Bridge deck drains and/or scuppers around the perimeter of the designated parking areas shall be closed off to prevent the discharge of accidental releases of spilled hazardous materials into coastal waters.
3. Vehicles and equipment will be inspected daily for leaks;
4. All leaking vehicles shall be removed immediately from the bridge.
5. Adequate spill prevention containment, and cleanup supplied shall be maintained onsite at the designated on-bridge parking areas.

(B) Initial Vegetation Removal for Accessing and Clearing Construction Sites, Not Requiring Grading or Other Ground Disturbances:

1. Entry to the hinge work areas shall be by foot; no roads shall be created.
2. All cutting shall be conducted with hand-held tools (e.g., chainsaw); no wheeled machinery may enter the vegetation removal site.
3. Work shall only entail the cutting vegetation to the ground; no ground/soil disturbing activities shall occur.
4. All cut vegetation shall be left onsite and distributed evenly to provide ground cover for preventing any potential soil erosion.
5. Subsequent removal, or onsite treatment (e.g., piling, slash burning, mulching, lopping and scattering) of the cut vegetation shall be conducted pursuant to approved erosion control, water quality protection, and revegetation plans as required by Special Conditions 2 and 3.

CALIFORNIA DEPARTMENT OF FISH AND GAME
NORTHERN REGION
601 LOCUST STREET
REDDING, CA, 96001

STREAMBED ALTERATION AGREEMENT
NOTIFICATION NO. 1600-2011-0300-R1
KLAMATH RIVER

CALIFORNIA DEPARTMENT OF TRANSPORTATION AND MR. KEVIN CHURCH
KLAMATH RIVER HINGE REPLACEMENT PROJECT
(FOUR ENCROACHMENTS)

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

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified DFG on December 19, 2011, that Permittee intends to complete the project described herein.

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

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

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

PROJECT LOCATION

The project is located at the Klamath River, in the County of Del Norte, State of California; Latitude 124° 1' 52"N, Longitude 41° 31' 4"W; Section 14, Township 13N, Range 1E, U.S. Geological Survey (USGS) map Requa, Humboldt Base and Meridian.

PROJECT DESCRIPTION

The project is limited to the replacement of three hinges on the Highway 101 Bridge crossing of the Klamath River, and the restoration/revegetation of 0.79 acres of riparian habitat. Approximately 8,240 square feet of riparian habitat will be impacted at each work site. A total of approximately 27,720 square feet of riparian habitat will be temporarily impacted

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include: **Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*O. kisutch*), steelhead trout (*O. mykiss*), coastal cutthroat trout (*O. clarki clarki*), Pacific lamprey (*Lampetra tridentate*), foothill yellow legged frog (*Rana boylii*), willow flycatcher (*Empidonax trailii*)**, other non-game and game fishes, amphibians, reptiles, aquatic invertebrates, mammals, birds, and other aquatic and riparian species.

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

Impacts to bed, channel, or bank and effects on habitat structure:

1. temporary change in contour of channel or bank;
2. temporary loss of bank stability during construction;
3. temporary increase of bank erosion during construction;
4. soil compaction or other disturbance to soil layer;

Impacts to bed, channel, or bank and direct effects on fish, wildlife, and their habitat:

1. temporary loss or decline of riparian and/or emergent marsh habitat;
2. hydroacoustic impacts to fish by pile driving;
3. temporary disruption to nesting birds and other wildlife;
4. temporary disturbance from project activity;

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

Permittee shall meet each administrative requirement described below.

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

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

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

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

1.5 DFG Notification of Work Initiation and Completion. The Permittee shall contact DFG within the 7-day period preceding the beginning of work permitted by this Agreement. Information to be disclosed shall include Agreement number, and the anticipated start date. The Permittee shall contact DFG within thirty days of completion of the work permitted by this Agreement. Information to be disclosed shall include Agreement number.

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 Except where otherwise stipulated in this Agreement, all work shall be in accordance with the work plan submitted with Notification No. 1600-2011-0300-R1, as of December 19, 2011.

2.2 All riparian vegetation removal work shall be confined to the period August 15 through March 1. All other construction activities shall be confined to the period June 15 through October 15 of each year.

2.3 No access roads will be established in the project area.

2.4 Equipment shall not operate in a live (flowing) stream or wetted channel.

2.5 No fill material shall be placed within a stream. Any fill material used shall be placed and/or removed in such a manner that it shall cause no sediment discharge or siltation in the stream.

2.6 Adequate and effective erosion and siltation control measures shall be used to prevent sediment or turbid or silt-laden water from entering streams. Where needed, the Permittee shall use native vegetation or other treatments including jute netting, straw wattles, and geotextiles to protect and stabilize soils. Geotextiles, fiber rolls, and other erosion control treatments shall not contain plastic mesh netting.

2.7 All bare mineral soil exposed in conjunction with construction, deconstruction, maintenance or repair, shall be treated for erosion prior to the onset of precipitation capable of generating run-off or the end of the yearly work period, whichever comes first. Erosion control efforts shall follow best management practices found in the Revegetation Plan.

2.8 Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations.

2.9 The Permittee shall provide site maintenance including, but not limited to, re-applying erosion control to minimize surface erosion and ensuring drainage structures, streambeds and banks remain sufficiently armored and/or stable.

2.10 On-site refueling activities that pose a risk of fuel spill to State waters shall be limited to heavy equipment on the bridge that cannot be readily relocated for fueling, and to equipment that must be lowered to the work area by a crane (such as bobcat, excavator, or fork-lift) and that are working adjacent to the live channel, or within 100 feet of the top-of-bank of the river channel, and shall be subject to the following requirements:
1. Refueling activities shall be limited to daylight hours and weather conditions with sufficient visibility to ensure visual contact between the valve operator and the operator of the fuel discharge connection device; and
2. An additional worker shall be stationed at the shutoff valve at all times during refueling; and
3. The hose nozzle shall be contained in a bucket or other containment device when being moved between the fuel truck and the equipment to be refueled; and
4. Absorbent pads shall be placed beneath the fill tube and fuel tank to catch any drips or spilled fuel; and
5. Spill kits shall be maintained in close proximity to the refueling

2.11 All activities performed in the field which involve the use of petroleum or oil based substances shall employ absorbent material designated for spill containment and clean up activity on site for use in case of accidental spill. Clean-up of all spills shall begin immediately. The Permittee shall immediately notify the State Office of Emergency Services at 1-800-852-7550. DFG shall be notified by the Permittee and consulted regarding clean-up procedures.

2.12 No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete washings, oil or petroleum products, or other organic or earthen material from any logging, 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.

3. Reporting Measures

Permittee shall meet each reporting requirement described below.

3.1 Permittee shall provide a final construction report via email to DFG no later than 30 days after the project is fully completed. The construction report at a minimum shall contain a brief summary of the work accomplished, and pre- and post-project photos of each site.

CONTACT INFORMATION

Written communication that Permittee or DFG submits to the other shall be delivered to the address below unless Permittee or DFG specifies otherwise:

To Permittee:

Mr. Kevin Church
California Department of Transportation
1656 Union Street
Eureka, CA 95501
Fax: (707) 441-5733
Email: Kevin_church@dot.ca.gov

To DFG:

Department of Fish and Game
Northern Region
619 2nd Street
Eureka, CA 95501

Attn: Lake and Streambed Alteration Program – Scott Bauer
Notification #1600-2011-0300-R1
Fax: (707) 441-2021
Email: sbauer@dfg.ca.gov

LIABILITY

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

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

SUSPENSION AND REVOCATION

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

Before DFG suspends or revokes the Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide Permittee an opportunity to

correct any deficiency before DFG suspends or revokes the Agreement, and include instructions to Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused DFG to issue the notice.

ENFORCEMENT

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

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

OTHER LEGAL OBLIGATIONS

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

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

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

AMENDMENT

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

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

TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless

the transfer or assignment is requested by Permittee in writing, as specified below, and thereafter DFG approves the transfer or assignment in writing.

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

EXTENSIONS

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

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

EFFECTIVE DATE

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

TERM

This Agreement becomes effective on the date of DFG's signature and terminates **4 years** from the effective date, 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.

A. Klamath River Bridge Hinge Replacement Project, Revegetation, Mitigation and Monitoring Plan, November 2011

AUTHORITY

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

AUTHORIZATION

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

CONCURRENCE

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

FOR CALIFORNIA DEPARTMENT OF TRANSPORTATION

Kevin Church — 3/6/12
Kevin Church — Date
Project Manager

FOR DEPARTMENT OF FISH AND GAME

T. Gibanca — 3/21/12
For Curt Babcock — Date
Environmental Program Manager

Prepared by: Scott Bauer
Staff Environmental Scientist
Revised March 6, 2012

MEMORANDUM OF UNDERSTANDING
Tribal Employment Rights Ordinance

Caltrans contract 01-47690
Klamath River Bridge-Hinge
DN 101 4.00
TERO MOU 12-02

The Yurok Tribe (**Tribe**) and the State of California Department of Transportation (**Caltrans**), in order to coordinate and carry out their respective functions and duties regarding Indian Employment Preference on State highway construction projects on lands within the Yurok Tribe reservation, lands held in trust for the Yurok Tribe by the BIA or lands under the direct ownership of the Yurok Tribe (**Tribal Lands**), do hereby enter into this Memorandum of Understanding (**MOU**).

This **MOU** constitutes a guide to the respective intentions, obligations, and policies of the **Tribe** and **Caltrans** in entering into this agreement. It is not intended to be used as a sole basis for authorizing funding, nor is it a legally binding contract upon either party.

Contract 01-47690 proposes work to remove and reconstruct hinges at spans 2,8 and 11 on the Klamath River Bridge, #01-0028, on State Route 101 in Klamath.

Contract No. Project ID	Project County-Route-Postmile	Work Description	Yurok Tribal Lands	Yurok IRR Inventory
01-47960 01000353	DN 101-4.0	Bridge Hinge Replacement	DN 101 – 2.7/8.76	DN 1010 0.00/8.8

I. INDIAN EMPLOYMENT PREFERENCE AND TERO FEE

A. Recitals

1. Section 122 of the Surface Transportation and Uniform Relocation Assistance Act of 1987, Pub. L. 100-17, 23 USC ss. 140(d), recognizes the establishment of Indian Employment Preferences in the Federal Aid Highway Program.
2. The **Tribe** has enacted certain tribal employment rights policies included within the Yurok Tribe **Tribal Employment Rights Ordinance** establishing a tribal employment rights function and mandating Indian Employment Preferences on State construction projects and in other forms of employment within the Reservation.

3. The parties hereto recognize that Caltrans shall employ the services of one or more independent contractors in order to accomplish all or some of the activities necessary for State highway construction on **Tribal Lands.**

4. **Caltrans** and the **Tribe** desire to promote Indian employment by

   a) applying Indian Employment Preferences to the State's contractors for highway work conducted on **Tribal Lands** or on any State highway included in the **Tribe's** Indian Reservation Road (IRR) Inventory when a portion of the project is on Tribal Lands, and

   b) establishing a mechanism to ensure that the **Tribe** receives TERO Fees for the portion of the project that is on **Tribal Lands.**

5. The parties desire to clarify the rights and obligations of the **Tribe, Caltrans**, and prospective bidders and contractors who may perform work on **Tribal Lands** for State highway construction contracts.

B. Statement Of Intent

1. **Caltrans** shall inform prospective bidders of the Tribal, State, and Federal laws with respect to Indian Employment Preferences by inserting provisions (Attachment A) in its information to prospective bidders. These provisions shall become part of the State highway construction contract. The provisions shall require

   a) submittal of TERO Highway Contract Permit (THCP) to Tribe within 5 days after Contract Approval

   b) a 45-day delayed start to allow for Contractor submittals to and from Tribe and Contractor submittal of completed THCP to Engineer

2. **Caltrans** shall not allow the contractor to begin work until the contractor has obtained, from the **Tribe**, a TERO Highway Contract Permit (Attachment B) from The TERO officer of the **Tribe.**

3. The TERO Officer of the **Tribe** shall work with Caltrans and Caltrans' contractor to process the TCHP in a timely manner and ensure that there is no delay in either beginning work or in providing qualified candidates to meet the contractor's personnel needs. The Tribe shall return the completed THCP to the contractor within 30 days of receiving the application.

4. Immediately after Contract Approval, **Caltrans** shall provide the TERO officer of the Tribe with all documentation necessary for the Tribe to properly invoice Caltrans for the TERO fee. The **Tribe** shall invoice **Caltrans** for the TERO Fee, 3% of the award amount, within 15 days after issuing the THCP. Upon receipt of an invoice for the TERO Fee, Caltrans shall forward the invoice to Accounting within 7 days and make prompt payment of the TERO fee to the Tribe.

5. **Caltrans** and the **Tribe** shall make a reasonable effort to conduct joint investigations and share information. Nothing in this **MOU** shall be construed to restrict the authority of the **Tribe**, either to initiate enforcement actions in the Tribal Court or to amend Tribal laws.

II. TERO PROVISIONS – Pertaining to Contracted State Highway Work

Listed below are those provisions from the Yurok TERO Ordinance that pertain to State Highway Work. Inapplicable sections or provisions are indicated by "N/A".

Yurok Tribe
Tribal Employment Right Ordinance
Approved: October 22, 2003
Amended: June 9, 2005

SUBJECT: Establishment of the Yurok Tribal Employment Rights Office (TERO) and adoption of standards and procedural guidelines for application of Yurok and Indian Preference in Employment.

TABLE OF CONTENTS

SECTION 1.0 SHORT TITLE

The short title of this ordinance shall be the "Yurok Tribal Employment Rights Office Ordinance," or Yurok TERO Ordinance.

1.1 AUTHORITY

This Ordinance is established by the Yurok Tribal Council pursuant to the authority delegated to the Tribal Council by Article IV, Section 5(a) of the Constitution of the Yurok Tribe.

1.2 JURISDICTION

The jurisdiction of the Yurok Tribe to enforce the TERO ordinance shall extend to (. . . N/A . . .) the area within the exterior boundaries of the "reservation" as defined in Article I, sections 1 through 3 of the Constitution of the Yurok Tribe. Additionally, the Tribe retains jurisdiction to enforce provisions of the TERO ordinance for all projects initiated or taken over by the Yurok Indian Housing Authority, whether on, or off, the Yurok reservation.

1.3 STATEMENT OF PURPOSE

The Yurok Tribal Council operates under a constitutional mandate to protect the sovereignty

of the Yurok Tribe and to provide for the cultural, social, and economic well being of current and future Yurok tribal members. In fulfillment of its duty to guarantee the unique employment rights of all Yurok tribal members and other Indians within its jurisdiction, the Yurok Tribal Council hereby creates a Tribal Employment Rights Office, (TERO) and establishes standards and procedural guidelines to assure 1) equal and effective application of this Ordinance; and 2) due process for all individuals affected by the application of its requirements.

1.4 CONSISTENCY WITH FEDERAL LAWS

Indians have unique and special employment rights, and are entitled to the protection of laws established by the federal government to combat employment discrimination on or near Indian reservations, including the following:

1.4.1 Title VII of the civil Rights Act, including Section *703(i),* which makes Indian preference in employment permissible.

1.4.2 Executive Order 11246 of the Federal Office of Contract Compliance, which exempts from the general requirements policies extending preference in employment for Indians living on or near an Indian Reservation, and which further prohibits discrimination among Indians as a group on the basis of religion, sex, or tribal affiliation. E.O. 11246 applies only to employers working under federal contracts.

1.4.3 The Indian Self-Determination Act, Section 7(b) of Public Law 93-638 which provides for Indian Preference in employment and training, and contracting or subcontracting on all contracts negotiated or let on behalf of an Indian Tribe.

1.4.4 The Indian Civil Rights Act of 1968 (ICRA) which prohibits Indian tribal governments from enacting or enforcing laws that violate certain individual rights similar to those individual rights guaranteed under the Bill of Rights of the United States Constitution.

SECTION 2. DEFINITIONS

2.1 **"CHAIRPERSON"** means the Chairperson of the Yurok Tribal Council.

2.2 **"COMMERCE"** means the exchange or provision of goods, services and/or property, or the offer of same, without reference to the locality

where transaction is conducted or consummated.

2.3 **"COMMUTE"** means the distance in miles, one way, customary for the occupation and region.

2.4 **"CORE EMPLOYEE"** means an employee who performs an essential job function and has been identified as an employee who is vital to the success of the endeavor. (Core Employees should be identified in coordination with the TERO Office and employer possesses records of past employment as a supervisor or foreman).

2.5 **"TRIBAL COUNCIL" or "COUNCIL"** means the Yurok Tribal Council.

2.6 **"COVERED EMPLOYER"** means any person, company, contractor, subcontractor *or* entity located *or* engaging in commercial or employment activity on the Yurok Indian Reservation, and which employs two or *more* persons, including the Yurok Tribe, regardless of where the activity occurs.

2.7 **"EMPLOYEE"** means any non-supervisory employee in a non-managerial position working on the Yurok Indian Reservation or its contiguous lands.

2.8 **"EXECUTIVE DIRECTOR"** means the administrative officer designated by the Tribal Council as such.

2.9 **"GRANDFATHERING"** means providing an exception to a restriction that allows all those already doing something to continue, even though it may be otherwise prevented by the restriction.

2.10 **"INDIAN"** means an enrolled member of any federally recognized Indian tribe.

2.11 N/A

2.12 **"INDIAN PREFERENCE"** means the policy of extending preference in employment or training opportunities to Yurok Tribal Members and other Indians, regardless of tribal affiliation, over non-Indians: (. . . N/A . . .)

2.13 **"LOCATED ON OR NEAR THE YUROK RESERVATION"** means

located within what a reasonable, prudent person would construe as the normal commuting distance from a location off the reservation to the exterior boundaries of the Yurok Indian Reservation as defined in Article I, Sections 1 through 3 of the Constitution of the Yurok Tribe.

2.14 **"NOTICE"** means that notification required to be given by the Yurok TERO Officer, the appointed tribal judge, the Tribal Council sitting as the interim final appeal body, or the Tribal Court acting as the body of final appeal regarding TERO related activities.

2.15 **"PERSON"** means both natural persons and artificial persons including, but not limited to, corporations, trusts, partnerships, unions, agents, societies, and sole proprietorships.

2.16 **"QUALIFIED INDIAN"** means an Indian who meets the requirements for a position as determined by the job requirements, the minimum qualifications statements for the position, and, for internal tribal hiring only, the final interview process. No employer may utilize any employment criteria not legitimately-related to the performance of the position.

2.17 N/A

2.18 **"SECRETARY"** means the Secretary of the United States Department of the Interior, or his/her duly-authorized and designated representative.

2.19 **"TERO OFFICER"** means the administrative officer employed by the Tribe to oversee and ensure compliance with the TERO Ordinance. The TERO Officer shall have the authority, for good cause shown, to impose sanctions and to issue stop work orders for reasons of non-compliance.

2.20 **"TRIBE"** means the federally recognized Yurok Tribe of the Yurok Reservation, operating under the authority of the Yurok Constitution.

2.21 **"UNION" or "LABOR UNION"** means any organization, of any kind, or any agency of employee representation committee or plan, associated or organized for the purposes of collective bargaining for the benefit of employees and that exists for the purpose, in whole or part, of dealing with employers concerning grievances, working conditions, or terms of employment.

2.22 **"YUROK RESERVATION"** means all lands within the exterior

boundaries of the Yurok Reservation; and any lands outside the exterior boundaries of the Yurok Reservation subsequently acquired, or put into trust, for the Tribe.

2.23 N/A

SECTION 3.0 ROLE OF YUROK TRIBAL COUNCIL

3.1 Authority. Through the sovereign powers vested in the Yurok Tribal Council through the Constitution of the Yurok Tribe, the Council shall be responsible for designating such officers, agents, and employees as it deems necessary to assist in fulfilling Yurok Tribal TERO obligations, duties, and responsibilities. The Tribal Council will oversee TERO implementation; and shall either sit as the TERO Hearing body, or identify the composition of a hearing body

3.2 Council Expenses. The Yurok Tribal Council shall not receive compensation of any kind for fulfilling its TERO related duties, obligations, and responsibilities.

3.3 Duties of the Council. Within the scope of overseeing the Yurok TERO, the Council is authorized to prevent any person, whether an individual or an entity, from engaging in any unlawful Indian preference in employment practices as set forth in the Yurok Tribe's TERO Ordinance.

3.4 Powers of the Council. As the oversight body for TERO, the Council has jurisdiction and authority to:

3.4.1 Formulate, adopt, amend and rescind rules, regulations and guidelines reasonably necessary to implement the provisions of this ordinance

3.4.2 To conduct hearings or appoint alternate hearing bodies and to subpoena witnesses and documents in accordance with this ordinance

3.4.3 Prohibit covered employers from using qualification criteria or other personnel requirements that serve as barriers to Indian employment, unless the employer can demonstrate that such criteria or requirements are an essential business necessity, and receives written approval from the TERO Officer that such qualifications are essential.

3.4.4 Engage in discussion, and enter into agreements, with unions to ensure compliance with this ordinance. Such agreements shall in no way constitute recognition or endorsement of any union or union-related activity, including formation thereof.

3.4.5 Require employers to submit reports and take all actions deemed necessary for the fair and vigorous implementation of this Ordinance.

3.5 Delegation of Authority. The Tribal Council shall delegate such authority to the TERO administrative officer (hereinafter "TERO Officer") as is convenient or necessary for the efficient administration of this ordinance, except that the Council will not delegate its powers or duties to:

3.5.1 Adopt, amend or rescind rules, regulations or guidelines; or
3.5.2 Conduct hearings or impose sanctions outside the scope of Section 12 of this Ordinance; or
3.5.3 Appropriate funds and/or approve budgets; or
3.5.4 Waive the collection of TERO taxes.

SECTION 4. THE YUROK TRIBAL EMPLOYMENT RIGHTS OFFICE

4.1 Establishment of Office and Hiring of TERO Officer(s)

The Yurok Tribal Council hereby establishes the Yurok Tribal Employment Rights Office (hereinafter TERO Office). The TERO Office is vested with the authority to implement the provision of this Ordinance. The Yurok Tribe Executive Director shall both hire the TERO Officer(s), and serve as his/her/their direct supervisor.

4.2 Coverage. All employers are required to give preference to Indians in hiring, promotion, training, temporary reductions in work force and all other aspects of employment, (. . . N/A . . .), and must comply with this Ordinance and the rules, regulations and orders of the Tribal Council.

4.3 Duties of the TERO Administrative Officer

The TERO Officer shall be charged with the overseeing the implementation and enforcement of this Ordinance, as well as day-to-day operations of the TERO office. The TERO Officer's duties include, but are not limited to, ensuring that Indian preference in employment is fully implemented by covered employers; and preventing any person from engaging in any unlawful practice that would interfere with application and/or enforcement of the provisions of this Ordinance.

4.4 TERO Officer Authority

The TERO Officer shall administer the policies and rules promulgated and adopted by the Tribal Council, and hold the powers and authorities prescribed by Council, including, but not limited to:

4.4.1 The authority to expend funds appropriated or obtained from various sources to carry out requirements of this Ordinance.

4.4.2 The authority to impose numerical hiring goals and timetables on an employer specifying the minimum numbers of qualified Tribal members and qualified Indians to be hired by occupation, craft, or skill level.

4.4.3 N/A

4.4.4 The duty to create and maintain a Tribal skills bank for all eligible Tribal members and other Indians residing in the administrative area covered by this Ordinance.

4.4.5 The ability to restrict or prevent the hiring of (. . . N/A . . .) non-Indians until the TERO Officer certifies that qualified Tribal members or qualified Indians, as appropriate, are not available to fill the position in question.

4.4.6 N/A.

4.4.7 The ability to facilitate support programs to assist eligible Yurok Tribal members, the Yurok Tribal community and other Indians in obtaining and keeping employment.

4.4.8 The duty to recommend amendments or changes to the rules and regulations adopted by Council, or other actions necessary to achieve the purpose and objectives of the Yurok TERO established by this Ordinance.

4.4.9 The duty to locate training opportunities and programs designed to teach Yurok Tribal Members and other Indians skills and qualifications needed to obtain employment.

4.4.10 The TERO Officer shall have the authority to issue stop work orders and mandatory compliance orders when necessary either to achieve the goals of this Ordinance, or to compel compliance therewith. When necessary, the TERO Officer is also authorized to request assistance from the Yurok Tribe Office of Public Safety in enforcing any stop work order where circumstances in existence at the time of inspection reasonably warrant such intervention. The standard for whether assistance by Public Safety Officers is warranted is that of the reasonable person under the same or similar circumstances.

SECTION 5. APPLICABILITY AND COVERAGE

5.1 Applicability

Unless specifically prohibited by federal or Yurok Tribal law, this Ordinance shall apply to all employers, including but not limited to: the Tribal Council, (its programs, departments, entities, or enterprises); private employers; and independent contractors and subcontractors, including those performing work for the Council, the State of California, or the United States.

All employers shall extend an employment preference to qualified Indians, as provided in Section 5.4, in all aspects of employment, including but not limited to recruitment, hiring, promotion, lateral transfers, retentions, training, (. . . N/A . . .). No employer may recruit, hire, or otherwise employ any non-Indian for any employment position covered by this Ordinance, unless and until the TERO Officer has furnished written notice to such employer that no qualified Indians are available for such position.

5.2 Covered Positions

The Yurok Tribe Indian Employment Preference Policy Section 5.4 shall apply to every job classification, skill area, or craft recognized or utilized by an employer, including administrative, supervisory, and professional classifications.

5.3 Qualified Indians and Employment Criteria

An Indian shall be deemed qualified for employment in a position if he/she meets the minimum requirements for such position. Any qualified Indian shall be afforded the preference to which he/she is entitled under Section 5.4 of this Ordinance. No employer may utilize any employment criteria that is not legitimately related to the performance of the position; and that has not been approved by the Yurok TERO Officer.

5.4 Eligible Indians

(. . . N/A . . .) (A)ll enrolled members of federally-recognized Indian tribes, whether Yurok Tribal members or not, are eligible for employment equally.

SECTION 6. IMPLEMENTATION OF SPECIFIC INDIAN PREFERENCE REQUIREMENTS

6.1 Employers, Contractors, and Subcontractors

The requirements set forth in this Ordinance are binding on all employers, contractors, and subcontractors and will be considered a part of all resulting subcontract specifications. The employer bears the primary responsibility for compliance with the requirements of this

Ordinance, and for ensuring that all contractors and subcontractors similarly comply.

All employers, contractors, and subcontractors shall be subject to the penalties provided herein for non-compliance with the terms and requirements of this Ordinance. All employers, contractors and subcontractors shall include in their contracts clauses acknowledging the equal opportunity and Indian preference requirements contained in this Ordinance.

6.2 Goals and Timetables for Indian Employment

The TERO Officer will consult with individual employers engaged in commerce on, or near, the Yurok Reservation to establish the minimum number of qualified Tribal members and qualified Indians to be employed by each employer. Goals will be established for all job classifications and skill areas, and will include administrative, supervisory, and professional categories. The goals set will be expressed as:

6.2.1 Project hours of Tribal Members and Indian employment as a percentage of the total project hours worked by the regular work force for each specific job classification, skill level, or category.

6.2.2 Numerical goals based on surveys of the available Tribal member and Indian labor forces and projections of employment opportunities for each specific job classification, skill level, or category.

6.3 Training N/A.

6.4 Tribal Skills Bank and Referral Process

The TERO Officer shall, in cooperation with other tribal departments, establish and administer a data bank of Yurok Tribal members and other Indians seeking employment. This data bank shall be called the Tribal skills bank, and shall list all available workers, their respective skills and qualifications, and include documentation of training or other special qualifications and/or needs.

No employer may hire non-tribal members until a reasonable time for referral, as defined in this subsection, has elapsed or the TERO Office has certified, in writing, that no qualified (. . . N/A . . .) Indians are available to fill particular job openings.

"Reasonable time for referral" for purposes of this Ordinance means:

(a) For construction jobs: the TERO Officer will locate and refer qualified Tribal members within 72 hours of the date and time of receiving the initial notice of

available opening from the employer.

(b) N/A

The TERO Officer may agree to waive or modify these requirements if there is a clear indication that the time limits would impose an undue burden on the project.

N/A

Employers found to be in violation of this Subsection will be subject to the penalties defined in Section 12 of this Ordinance and may further be required to remove any employees so hired.

6.5 N/A

6.6 N/A

6.7 N/A

6.8 N/A

6.9 N/A

6.10 Layoffs or Reductions in Workforce

6.10.1 N/A

6.10.2 Termination of Indians
No worker who is an Indian will be terminated due to a reduction in workforce if a non-Indian worker in the same job classification is still employed. If an employer lays off workers by crews, all qualified Indians must be transferred to other crews to be retained as long as non-Indians in the same job classification are employed elsewhere on the job site.

6.11 Consideration for Promotion

Every employer shall give Indians preferential consideration for all promotion opportunities, and shall encourage Indians to seek such opportunities. For every supervisory position filled by a non-Indian, the employer shall file a report with the TERO Office expressly indicating:

(a) What efforts were made to inform Indian workers about the position; and

(b) How many Indians applied for the position; and

(c) The reason(s) why each Indian was not hired for the position.

6.12 N/A

SECTION 7. N/A

SECTION 8. THE YUROK TRIBAL EMPLOYMENT RIGHTS FEE

8.1 N/A

8.2 Fee Schedule

8.2.1 (. . . N/A . . .) a one-time fee of three-percent (3%) of the total gross amount of the contract, where the total contract amount is at least two thousand dollars U. S. ($2, 000. 00 U. S.) .

8.2.2 N/A.

8.3 Duties of TERO Officer/Method of Payment

The TERO Officer shall be responsible for collecting all TERO fees from covered employers.

8.3.1 The TERO fee shall be paid to the Yurok Tribe; and shall be credited to the account of the Yurok Tribe TERO for use in implementing this Ordinance; and shall be governed by guidelines approved by the Yurok Tribal Council.

8.3.2 N/A

8.3.3 The Yurok Tribe Fiscal Department shall be exempt from any TERO Pees.

8.3.4 N/A

8.3.5 N/A

SECTION 9. N/A

9.1 N/A

9.1.1 N/A

9.1.2 N/A

9.1.3 N/A

9.1.4 N/A

9.1.5 N/A

9.1.6 N/A

9.2 N/A

SECTION 10. DUE PROCESS AND HEARINGS

10.1 Right to Hearings

An individual, employer, union, or the TERO Officer may request a hearing pursuant to either allegation(s) of a violation of this Ordinance; or that any rule, regulation, or order of the TERO Officer is believed to be erroneous or illegal.

10.2 Notice of Hearing

Whenever a hearing is requested by the TERO Officer, an individual, an employer, or a union, written notice thereof must be provided to all involved parties.

10.2.1 Said notice shall include:

- **(a)** The names
- **(b)** Names of whenever party or of all parties to an action; and those not yet party to an action, known; or whose identity as a potential parties would be discovered through the exercise of due diligence; and
- **(c)** The nature of the hearing; and
- **(d)** An express statement that the party or parties named have the right to be present at the hearing; and
- **(e)** An express statement that anyone named in the notice has the right to present testimony of witnesses or other evidence; and
- **(f)** An express statement that anyone named in the notice has the right to representation by counsel at their own expense: and
- **(g)** An express statement that the TERO Officer may be represented by General

Counsel for the Yurok Tribe.

10.2.2 Notice shall be published in at least two newspapers of appropriate circulation. If the whereabouts of any party or parties is unknown, then:

(a) Notice shall be posted in a public place within the Yurok Reservation for not less than ten (10) working days; and
(b) Notice shall be kept on file in the tribal offices located In Eureka, Weitchpec, and Klamath, available upon request; and
(c) Notice shall also be posted in the Eureka, Weitchpec, and Klamath tribal offices and therefore, available for public inspection.

10.3 TERO Office Complaint Procedure

The TERO Officer may file a complaint on the basis of noncompliance with the requirements of this Ordinance by an employer, contractor, subcontractor, or union.
The TERO Officer may first attempt to resolve the matter informally, but if that is not possible or futile, the TERO Officer may request a hearing pursuant to subsection 10.1 of this Ordinance.

10.4 Individual Complaint Procedure

10.4.1 An individual may file a complaint with the TERO Office regarding any alleged violation on the part of an employer, contractor, subcontractor, or union. To substantiate a verbally-delivered complaint, the TERO Officer must request that the complainant submit the complaint in writing.

10.4.2 Upon receipt of a written complaint, the TERO Officer has an affirmative duty to investigate the allegations. Both the party or parties named as violators and the complainant will receive written notice stating that an investigation *will* be conducted and setting forth with specificity the factual basis for the complaint.

10.4.3 Once the investigation is complete, the TERO Officer will issue a written finding either sustaining or not sustaining the alleged violation(s). If the allegations are not sustained, the complaint shall be dismissed and written notice provided to all involved parties within ten (10) business days of the date of the finding. If the allegations are sustained, the TERO Officer shall issue written notice within ten (10) business days of the date of the finding to all involved parties.

10.4.4 If an allegation of a TERO violation is sustained, the TERO Officer will then request to meet informally with both the complainant and TERO violator in an attempt to resolve the issue. The request for a meeting can be made either in writing or telephonically. If telephonic, a log shall be kept at the Yurok TERO containing the date, time, and content of the conversation.

10.4.5 If the matter cannot be resolved informally, either the parties or TERO Officer may request a hearing pursuant to Subsection 10.1.

10.4.6 Any employer, contractor, subcontractor, or union that takes retaliatory action against a Yurok tribal member or other Indian employee who has utilized this complaint procedure, or who asserts any rights under this Ordinance, will be subject to the penalties provided in section 12 of this Ordinance.

10.5 Complaint by an Employer or Union

10.5.1 Any employer or union may file a complaint with the Yurok Tribal Council alleging that a provision of this Ordinance, or any rule, regulation, or order of the TERO Office is illegal, erroneous, and/or erroneously applied.

10.5.2 Any such complaint must be in writing, and addressed to both the Tribal Council and TERO Officer. The complaint must specify, in detail, the basis for the complaint.

10.5.3 Upon receipt of the complaint, the Tribal Council, or its designee, shall schedule a hearing on the merits. To prevail at the hearing, the employer or union must establish prove their allegations by a preponderance of the evidence. Following the hearing, the Council must rule whether the allegation(s) is/are sustained or not sustained. The finding shall be forwarded within ten (10) business days of the date of the decision to all involved parties, along with notice of the right to appeal the decision of the Council to the Yurok Tribal Court.

10.6 Investigations

The TERO Officer and/or any field compliance officer designated by the Council may conduct such private or public investigations within the jurisdiction of this Ordinance, to determine the facts or the instances of alleged violations of this Ordinance. The TERO Officer and/or field compliance officer may enter the place of business or employment of any employer to conduct such investigations during

regular business hours.

Investigations can include, but are not limited to: taking statements of workers on site or at the Yurok Tribal headquarters, whether by hand or recording device; taking photographs or video recordings of work areas and workers on any given site; requesting certified payroll records, proof of liability and workmen's compensation insurance, and any other regularly-kept business records relating to employee attendance and activity; making more than one site visit per day; taking statements, whether by hand or via a recording device, of community members having information about an employer's practices that formed the basis of a written complaint; and interviewing record-keeping staff of any respective employer.

10.7 Hearing Procedures

The following procedures will apply all hearings:

10.7.1 All parties may present testimony of witnesses and other evidence; and may be represented by counsel at their own expense.

10.7.2 The Tribal Council or TERO Officer, may receive advice and assistance from the Yurok Tribe's in-house legal counsel. Outside counsel, when deemed necessary by the Council, may also be consulted.

10.7.3 The hearing shall be governed by the rules of practice and procedure adopted by the Council. The Council shall not be bound by technical rules of evidence while conducting hearings, and no informality in any proceeding, including the manner of taking testimony, shall invalidate any order, decision, rule or regulation made, approved, or confirmed by the Council.

10.7.4 Depending on the type of hearing, the following person(s) may preside: The Chair or Vice Chair of the Tribal Councilor a hearing officer appointed by the Tribal Council.

10.7.5 Any finding sustaining an allegation of violation by any party defendant must be supported by a preponderance of the evidence.

10.7.6 At the close of the hearing, the Council may take immediate action or take the matter under advisement and render a decision on a later date. If rendering of a decision is postponed, all parties shall be so notified, on the record, prior to adjourning the hearing session. If possible, a date by which a final decision will be rendered shall also be provided to all parties.

10.7.7 Any decision by a hearing officer, or hearing body, must be issued in writing, and submitted no more than thirty (30) days after the date of the conclusion of the hearing. It shall be served on all parties via certified mail, return-receipt requested, or in person. If service is accomplished in person, proof of receipt shall be achieved by having the recipient place their signature in a logbook bearing a brief description of the document(s) received. The logbook shall be kept at the Tribal headquarters in Klamath, California.

10.7.8 Official transcripts shall be made of every hearing conducted. Said transcript(s) shall be made available to any party wishing to appeal the decision of the Tribal Councilor its designee for a fee of two-hundred-fifty-five dollars U.S. ($250.00 U.S.). From time-to-time, this fee shall be adjusted without prior notice to account for increased market costs and inflation. Should the Yurok Tribal Council contract transcription services outside the Tribal facility, the rate shall be the market rate for that particular service provider. In the event the appellant is the TERO Officer and/or his/her designee, the fee for the transcript shall be waived unless the transcript is provided by a contract transcription services provider.

10.8 Appeals

10.8.1 Accurate records of all testimony, evidence, and other matters material to the issue on appeal presented at evidentiary hearings conducted by the Councilor its designee.

10.8.2 Any final order of the Tribal Council may be appealed to the Yurok Tribal Court. On appeal, the case will be tried de novo.

10.8.3 The Notice of Appeal must:

(a) Be filed, in writing, at the TERO Office within fifteen (15) days after the date of entry of the final order.

(b) Identify the order and set forth the grounds upon which the request for a reversal or modification is sought.

10.8.4 Compliance with any order, which is the subject of a timely appeal, will be held in abeyance pending a decision on the matter by the Tribal Court. If an order under appeal is modified or set aside by the Tribal Court, the decision of the Tribal Court will be sent via certified mail, return-receipt requested, to all parties. Any

amendments to this Ordinance ordered as a result of an appeal to the Tribal Court will be sent via certified mail, return-receipt requested, to employers, federal and state agencies, and other interested parties; and will be posted in public places on the Yurok Reservation.

10.9 Confidentiality

10.9.1 All information collected pursuant to an investigation authorized under this Ordinance shall be kept confidential. Portions of hearings that involve the use or disclosure of confidential documents such as employee records shall be closed to the public, and files containing such confidential information shall be sealed. Such confidential information may only be obtained pursuant to a Tribal Court order following a hearing on an affidavit proving the necessity of disclosure.

10.9.2 Any person whose confidential information is sought shall be given sufficient notice in advance of disclosing such confidential information, so that the person may object to the disclosure.

SECTION 11. TERO COMPLIANCE

As of the effective date of this Ordinance, no new covered employer may commence work on the Yurok Indian Reservation without consulting with the Tribe through its TERO Office, and filing an acceptable (. . . N/A. . .) TERO Pre-Award Labor Force Projection Form.

SECTION 12. REPORTING AND ON-SITE INSPECTIONS

Each employer, as part of their compliance activity, shall submit monthly reports to the TERO Office, on a form provided by the TERO Officer, indicating the number of employees -including a separate tally of Indians -on its workforce; monthly hires and terminations and/or lay-offs; and other information as may be identified on the form.
An employer who fails to submit monthly reports shall be subject to sanctions.

The TERO Officer will have the authority to make on-site inspections during regular working hours in order to monitor compliance with this Ordinance, and any other rules, regulations, and/or order of the TERO Officer or Council. The TERO Officer or designated field compliance investigator has the right to inspect and copy all relevant records of any employer, signatory union, contractor, or subcontractor, to interview or speak to workers and otherwise conduct investigations on the job site. All information collected will be kept confidential unless or until disclosure is required during a hearing or appeal as provided in section 10.7.

SECTION 13. PENALTIES FOR VIOLATIONS

Any employer, contractor, subcontractor, or union who violates this Ordinance or the rules, regulations, or orders promulgated by the TERO Officer or Council will be subject to the following penalties for such violation:

(a) N/A

(b) Payment of any back pay and damages to compensate any injured party.

(c) Removal of any employees hired in violation of this Ordinance or the rules, regulations, and orders pertaining thereto.

(d) An order requiring the employment, promotion, (. . . N/A . . .) of qualified Tribal members, and other Indians who suffered economic injury as a direct result of the violation.

(e) Imposition of monetary civil penalties and fines.

(f) An order mandating changes in procedure or policies necessary to eliminate or correct the violation.

(g) An order mandating any other provision deemed necessary by the TERO Officer, the Council, or the Tribal Court to alleviate, eliminate, or compensate for any violation.

The maximum penalty that may be imposed is $500.00 for each occurrence. Every day during which a violation exists shall be deemed a separate occurrence.

SECTLON 14. ORDERS OF THE YUROK TRIBAL POLICE

The Yurok Tribe Office of Public Safety is expressly authorized and directed to enforce any cease and desist or related order issued by the TERO Officer, in-house legal department, or Council only when such order is supported by either a judicial decree, or order, from the Yurok Tribal Court. The Tribal police will not be civilly liable for enforcing such Tribal Court orders or judicial decrees, provided that the order or decree bears the signature of a judge of the Tribal Court.

SECTION 15. PUBLICATION OF ORDINANCE

The Council will notify all Covered Employers regarding the adoption of this Ordinance and their obligation to comply. All bid announcements issued by any tribal, federal, state, or other

public or private entity shall contain a statement that the successful bidder will be required to comply with this Ordinance and all rules, regulations, and orders of the TERO Office and Tribal Council within it's jurisdiction. Council will send copies of this Ordinance to every employer operating on, or near, the Yurok Reservation or its contiguous lands, as defined in this Ordinance; and to every covered employer within thirty (30) days of the effective date of this Ordinance.

SECTION 16. SEVERABILITY

If any provision of this Ordinance, or its application to any person or circumstances, is held invalid by a court of appropriate jurisdiction, the remainder of the Ordinance or application of the provision to other persons or circumstances, shall not be affected thereby.

SECTION 17. EFFECTIVE DATE

This Ordinance shall be effective and enforceable from the date of its approval and adoption by the Yurok Tribal Council.

SECTION 18. SOVEREIGN IMMUNITY

Nothing in the enactment, contents, administration, or enforcement of this Ordinance is intended to, nor shall, waive the sovereign immunity from unconsented suit of the Yurok Tribe, its officers, officials, employees, or agents acting within the course and scope of their official duties or authority, including, but not limited, to the following:
(a) Taking legal action against any person to enforce or otherwise further the purposes of this Ordinance;
(b) Defending legal action taken by another person to invalidate all or a portion of this Ordinance, or any actions taken under the authority of this Ordinance, for any failure to act under this Ordinance; or
(0) Acting to enforce any penalties or sanctions under this Ordinance.

SECTION 19. EXCLUSIVITY OF REMEDY

The procedures, remedies, and forums set forth in this Ordinance are the sole and exclusive procedures, remedies, and forums for addressing any grievances, claims, or causes of action brought by any person pursuant to this Ordinance. The Tribe specifically does not consent to any grievances, claims, or causes of action other than those set forth in this Ordinance. By enacting this Ordinance, the Tribe is not creating any private causes of action.

MEMORANDUM OF UNDERSTANDING
Tribal Employment Rights Ordinance

Caltrans contract 01-47690
Klamath River Bridge-Hinge
DN 101 4.00
TERO MOU 12-02

This **MOU** may be amended by written agreement of the parties, or terminated by either party upon reasonable written notice. In the event of termination, unless otherwise mutually agreed by the parties, the provisions of this **MOU** will remain in force with respect to any contract covered hereunder which has already been awarded or for which contractor performance has already commenced.

The parties hereto have agreed to the objectives, principles, and recitations cited in this document and have further approved this **MOU** for signature by their duly authorized representatives.

for the Yurok Tribe

By: Marjorie Buckskin
for THOMAS P. O'ROURKE Sr.
Chairman

Date: 8-17-12

for the CALIFORNIA DEPARTMENT OF TRANSPORTATION

By: Charles Fielder
CHARLES C. FIELDER
District Director, District 1

Date: 8/20/2012

ATTACHMENT A

Project-Specific Special Provisions For Yurok TERO MOU

SPECIAL NOTICE:

- This project includes Tribal Employment Rights Ordinance (TERO) requirements. See Section 4, "Beginning of Work, Time of Completion and Liquidated Damages," of these special provisions for TERO submittals required before starting work.

SECTION 4. BEGINNING OF WORK, TIME OF COMPLETION, AND LIQUIDATED DAMAGES:

Use a minimum 55-day delayed start after contract approval.

Submit a TERO Highway Construction Permit (THCP) Application, shown in "Supplemental Project Information" of the special provisions, to the Yurok Tribe within 5 days after contract approval. Submit a copy of the THCP application to the Engineer at the same time. Submit a completed THCP to the Engineer within 10 days after receipt from the Yurok Tribe.

Do not start work at the job site until the Engineer approves your submittal for:

Completed TERO Highway Construction Permit (THCP) from the Yurok Tribe.

5-1.__ SUPPLEMENTAL PROJECT INFORMATION

The Department makes the following supplemental project information available:

Supplemental Project Information

Means	Description
Included in the Information Handout	Yurok Tribe TERO Requirements Information Handout

INFORMATION HANDOUT

Yurok Tribe TERO Requirements Information Handout contains:

1. Signed one-time MOU between the Yurok Tribe and the State.
2. Attachment A project special provisions.
3. Attachment B TERO Highway Construction Permit Application (THCP).

ATTACHMENT B
Part 1
TERO Highway Construction Permit (THCP)

YUROK TRIBE
TRIBAL EMPLOYMENT RIGHTS OFFICE
MEMORANDUM ON COMPLYING WITH TRIBAL AND FEDERAL EMPLOYMENT LAWS

The Tribal Employment Rights Office (TERO), on the Yurok Indian Reservation, has been implemented to assist employers, contractors, and/or subcontractors towards meeting the required rules and regulations of the Yurok Tribal Council, and the employment laws of the U.S. Government.

TERO HIGHWAY CONSTRUCTION PERMIT APPLICATION (THCP)

1. State Contractor (Employer) shall file a Yurok TERO Labor Force Projection Form with the TERO office for themselves and all subcontractors (Employer) listed on State contract bid form within five (5) days after contract approval.

2. If available, qualified Indians must be hired in preference to non-Indians. Employer shall neither recruit nor hire any non-Indians for any covered position until the Yurok TERO has provided written notice that no qualified Indians are available to fill such covered position. Covered positions are defined in the Yurok TERO Policy. Each waiver issued is only for that particular position/task and the employee cannot be transferred to another position once that job is done.

3. The Yurok TERO maintains a Indian Skills-Bank to assist Employers to meet the Indian Preference requirements of the TERO Policy of the Yurok Tribe. Please note: "Core Crew" is key employees of the firm who have worked continuously for the firm for many seasons and who were not recently hired for this particular project. (Possessing records of past employment as proof as a supervisor or foreman).

PLEASE RETURN COMPLETED LABOR FORCE PROJECTION FORMS TO:
Jennifer Elk, TERO Officer
Yurok Tribe
190 Klamath Blvd.
Klamath, CA 95548
(707) 482-1350

ATTACHMENT B
Part 2
TERO Highway Construction Permit (THCP)

YUROK TRIBE
TRIBAL EMPLOYMENT RIGHTS OFFICE
LABOR FORCE PROJECTION FORM

Prime employer and all subcontractors are required to submit the following information to the TERO:

Employer/Supplier Name: _____
Mailing Address: _____
City,State,and Zip Code: _____
Phone Number _____
Cell # _____
Contact: _____
Contract Number: _____
Amount of Contract: $ _____
Contracting With: _____

THIS IS AN AGREEMENT BETWEEN *THE YUROK TRIBE* AND EMPLOYER FOR CONDUCTING EMPLOYMENT ACTIVITY WITHIN THE EXTERIOR BOUNDARIES OF THE YUROK INDIAN RESERVATION *AND YUROK TRIBAL "Lands".*

EMPLOYER hereby agrees to comply with the requirements and procedures for the recruitment of viable Indian applicants through TERO.

TERO shall receive notice, in the form of copies of bid forms by awarded prime Employer seeking bids of all sub-contract work to be conducted on the Yurok Indian Reservation. Notice shall be made reasonably in advance of contract approval, but not later than five (5) days after approval.

The above named employer understands that they are required to comply with the portions of the Yurok Tribal Councils TERO *Ordinance (*adopted *October 22, 2003)* listed in the Yurok Tribe/Caltrans TERO MOU (dated 8/20/2012).

COMPLIANCE INSPECTIONS: The TERO Officer or other designated staff shall make periodic or site visitations for assurance to all involved parties that employment rules are adhered to.

MAINTAINING EMPLOYMENT RECORDS: Employer shall maintain accurate employment records on all employees and all applicants for employment; regardless of length and category or employment, hired, fired, or laid-off. The files shall reflect: name, address and employment category for which applicant performed or applied to perform. If applicant was contacted but not hired, hired and fired, all data should reflect action taken by that firm. Such informational records shall be made available to the TERO Officer, upon reasonable notice.

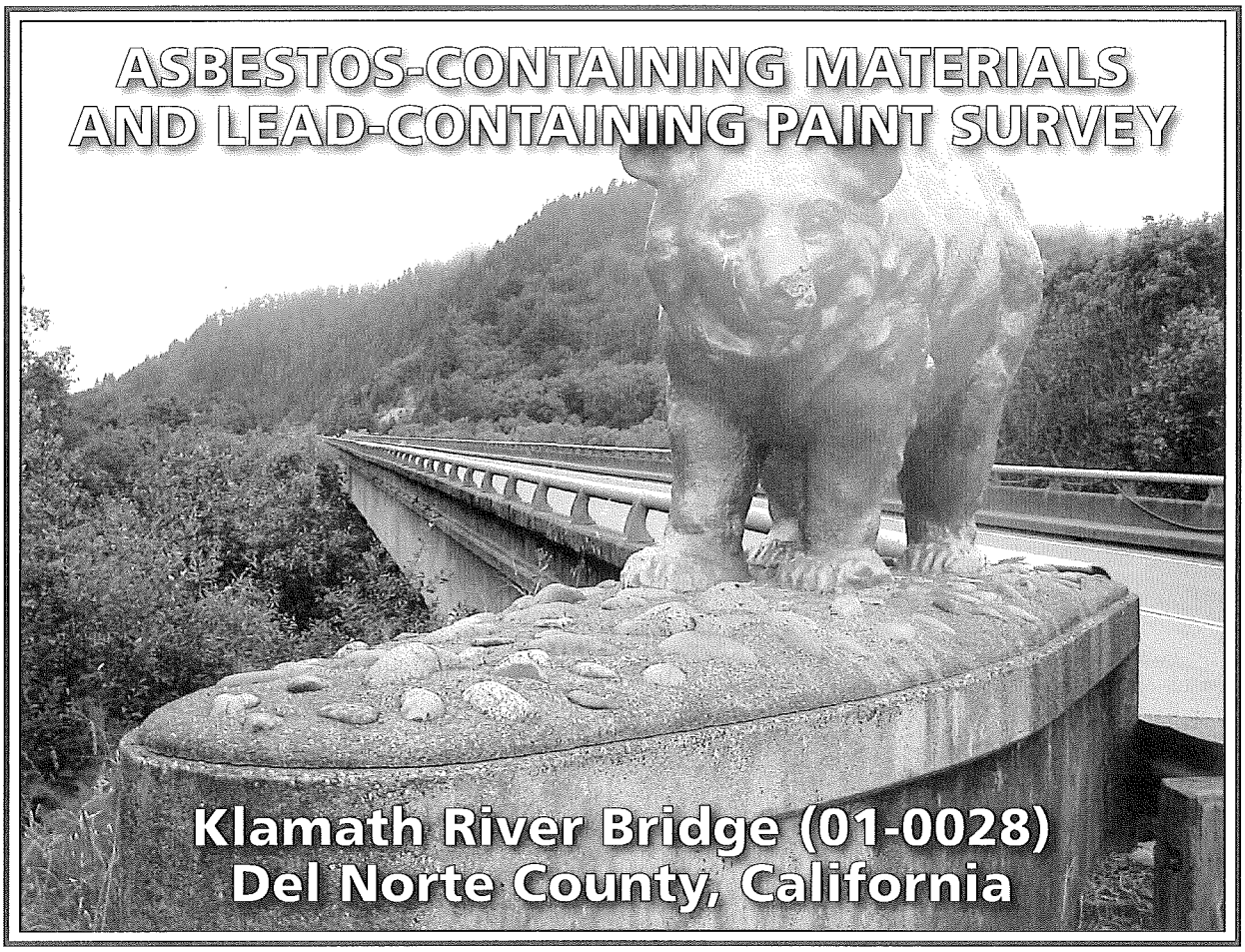
ASSISTANCE: If an Employer deems that an Indian employee's performance is such that he or she is jeopardizing and endangering job loss, suspension, or termination, Employer may contact TERO to provide assistance toward resolving of that issue.

EMPLOYMENT POLICIES AND PROCEDURES: It is further understood that Employer recognizes that its operations are taking place within a unique cultural setting on the Yurok Indian Reservation. Accordingly, all firms in conjunction with the TERO Officer should consider seriously Tribal Holidays and ceremonial customs; and to accommodate those Indian employees requesting certain leave of absences for religious purposes.

****This form must be completed and filed with the TERO. Attach additional sheets if necessary.***

Briefly describe the basic tasks and types of work to be performed:

ASBESTOS-CONTAINING MATERIALS AND LEAD-CONTAINING PAINT SURVEY



Klamath River Bridge (01-0028)
Del Norte County, California

PREPARED FOR:

CALIFORNIA DEPARTMENT OF TRANSPORTATION – DISTRICT 1
ENVIRONMENTAL ENGINEERING OFFICE
1656 UNION STREET
EUREKA, CALIFORNIA 95501

Caltrans®

PREPARED BY:

GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DRIVE, SUITE 800
RANCHO CORDOVA, CALIFORNIA 95742

GEOCON

GEOCON PROJECT NO. S9300-06-141
TASK ORDER NO. 141, EA 01-476900

SEPTEMBER 2010

GEOCON
CONSULTANTS, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. S9300-06-141
September 29, 2010

Steve Werner, Task Order Manager
Caltrans District 1
Environmental Engineering Office
1656 Union Street
Eureka, California 95501

Subject: KLAMATH RIVER BRIDGE (01-0028)
DEL NORTE COUNTY, CALIFORNIA
CONTRACT NO. 03A1368, TASK ORDER NO. 141, EA NO. 01-476900
ASBESTOS-CONTAINING MATERIALS AND LEAD-CONTAINING PAINT
SURVEY REPORT

Dear Mr. Werner:

In accordance with California Department of Transportation Contract No. 03A1368 and Task Order No. 141, we have performed an asbestos and lead-containing paint survey of the subject bridge in Del Norte County, California. The scope of services included surveying the bridge for suspect asbestos-containing materials and lead-containing paint, collecting bulk samples, and submitting the samples to laboratories for analyses.

The accompanying report summarizes the services performed and laboratory analysis.

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

Please contact us if you have questions concerning the contents of this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

David A. Watts, CAC
Senior Project Scientist

John E. Juhrend, PE, CEG
Project Manager

(2 + 2 CDs) Addressee

TABLE OF CONTENTS

ASBESTOS-CONTAINING MATERIALS AND LEAD-CONTAINING PAINT SURVEY REPORT

ASBESTOS-CONTAINING MATERIALS AND LEAD-CONTAINING PAINT SURVEY REPORT

1.0 INTRODUCTION

This asbestos and lead-containing paint (LCP) survey report was prepared by Geocon Consultants, Inc. under Caltrans Contract No. 03A1368, Task Order No. 141 (TO-141).

1.1 Project Description

The project consists of the Klamath River Bridge (01-0028) at Post Mile (PM) 4.04 on Highway 101 in Del Norte County, California. We performed asbestos and LCP survey activities at the bridge. The approximate project location is depicted on the Vicinity Map, Figure 1. The approximate sample locations are depicted on the Site Plan, Figure 2.

1.2 General Objectives

The purpose of the scope of services outlined in TO-141 was to determine the presence and quantity of asbestos and LCP at the project location prior to currently proposed improvements (joint cleaning, joint seal replacement, paving notch cleaning, repairs of cracks and spalls at abutments and girders, and replacement of hinges). Assuming that no asbestos is added to the bridge during future renovations, our survey would satisfy NESHAP requirements. The information obtained from this investigation will be used by Caltrans for waste profiling, determining California Occupational Safety and Health Administration (Cal/OSHA) applicability, and coordinating asbestos and LCP disturbance activities.

> *It was <u>not</u> Geocon's intent during this inspection to conduct an evaluation of lead-based paint hazards in accordance with U.S. Department of Housing and Urban Development (HUD) guidelines.*

2.0 BACKGROUND

2.1 Asbestos

The *Code of Federal Regulations (CFR),* 40 CFR 61, Subpart M, National Emissions Standards for Hazardous Air Pollutants (NESHAP) and Federal Occupational Safety and Health Administration (FED OSHA) classify asbestos-containing material (ACM) as any material or product that contains *greater than* 1% asbestos. Nonfriable ACM is classified by NESHAP as either Category I or Category II material defined as follows:

- **Category I** – asbestos-containing packings, gaskets, resilient floor coverings, and asphalt roofing products.
- **Category II** – all remaining types of nonfriable asbestos-containing material not included in Category I that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Regulated asbestos-containing material (RACM), a hazardous waste when friable, is classified as any manufactured material that contains *greater than* 1% asbestos by dry weight *and* is:

- Friable (can be crumbled, pulverized, or reduced to powder by hand pressure); or
- Category I material that has become friable; or
- Category I material that has been subjected to sanding, grinding, cutting, or abrading; or
- Category II nonfriable material that has a high probability of becoming crumbled, pulverized, or reduced to a powder during demolition or renovation activities.

Activities that disturb materials containing *any* amount of asbestos are subject to certain requirements of the Cal/OSHA asbestos standard contained in Title 8, CCR Section 1529. Typically, removal or disturbance of more than 100 square feet of material containing more than 0.1% asbestos must be performed by a registered asbestos abatement contractor, but associated waste labeling is not required if the material contains 1% or less asbestos. When the asbestos content of a material exceeds 1%, virtually all requirements of the standard become effective.

Materials containing more than 1% asbestos are also subject to NESHAP regulations (40 CFR Part 61, Subpart M). RACM (friable ACM and nonfriable ACM that will become friable during demolition operations) must be removed from structures prior to demolition. Certain nonfriable ACM and materials containing 1% or less asbestos may remain in structures during demolition; however, there are waste handling/disposal issues and Cal/OSHA work requirements that must be addressed. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

With respect to potential worker exposure, notification, and registration requirements, Cal/OSHA defines asbestos-containing construction material (ACCM) as construction material that contains more than 0.1% asbestos (Title 8, CCR 341.6).

2.2 Lead Paint

Construction activities (including demolition) that disturb materials or paints containing *any* amount of lead are subject to certain requirements of the Cal/OSHA lead standard contained in Title 8, CCR, Section 1532.1. Deteriorated paint is defined by Title 17, CCR, Division 1, Chapter 8, §35022 as a surface coating that is cracking, chalking, flaking, chipping, peeling, non-intact, failed, or otherwise separating from a substrate. Demolition of a deteriorated LCP component would require waste characterization and appropriate disposal. Intact LCP on a component is currently accepted by most landfill facilities; however, contractors are responsible for segregating and characterizing waste streams prior to disposal.

For a solid waste containing lead, the waste is classified as California hazardous when: 1) the total lead content equals or exceeds the respective Total Threshold Limit Concentration (TTLC) of 1,000 milligrams per kilogram (mg/kg); or 2) the soluble lead content equals or exceeds the respective Soluble Threshold Limit Concentration (STLC) of 5 milligrams per liter (mg/l) based on the standard Waste Extraction Test (WET). A waste has the potential for exceeding the lead STLC when the waste's total lead content is greater than or equal to ten times the respective STLC value since the WET uses a 1:10 dilution ratio. Hence, when total lead is detected at a concentration greater than or equal to 50 mg/kg, and assuming that 100 percent of the total lead is soluble, soluble lead analysis is required. Lead-containing waste is classified as "Resource, Conservation, and Recovery Act" (RCRA) hazardous, or Federal hazardous, when the soluble lead content equals or exceeds the Federal regulatory level of 5 mg/l based on the Toxicity Characteristic Leaching Procedure (TCLP).

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

Potential hazards exist to workers who remove or cut through LCP coatings during demolition. Dust containing hazardous concentrations of lead may be generated during scraping or cutting materials coated with lead-containing paint. Torching of these materials may produce lead oxide fumes. Therefore, air monitoring and/or respiratory protection may be required during the demolition of materials coated with LCP. Guidelines regarding regulatory provisions for construction work where workers may be exposed to lead are presented in Title 8, CCR, Section 1532.1.

2.3 Architectural Drawings and Previous Survey Activities

We reviewed bridge architectural plans provided by Caltrans prior to field activities. We observed evidence of the use of asbestos sheet packing within the box girders at the expansion hinge assemblies on drawing 0128-10. We observed no other evidence of asbestos or lead paint use on the architectural plans provided. Previous bridge asbestos survey reports were not available for our review.

3.0 SCOPE OF SERVICES

Mr. David Watts, a California-Certified Asbestos Consultant (CAC), certification No. 98-2404 (expiration September 16, 2011), and Certified Lead Paint Inspector/Assessor and Project Monitor with the California Department of Public Health Services (DPH), certification numbers I-1734 and

M-1734 (expiration December 4, 2011), performed the asbestos and LCP survey at the project location on August 4, 2010.

3.1 Asbestos

Suspect ACM were grouped into homogeneous areas with representative samples randomly collected from each. In addition, each potential ACM was evaluated for friability. A total of seven bulk asbestos samples representing five suspect construction materials (construction concrete systems, expansion joint fill materials, and barrier rail shims) were collected. We were not able to access the bridge box girders during our survey (see Section 2.3).

Our procedures for inspection and sampling in accordance with TO-141 are discussed below:

- Collected bulk asbestos samples after first wetting friable material with a light mist of water. The samples were then cut from the substrate and transferred to a labeled container. Note that when multiple samples were collected, the sampling locations were distributed throughout the homogeneous area (spaces where the material was observed).
- Relinquished bulk asbestos samples to EMSL Analytical, Inc., a California-licensed and Caltrans-approved subcontractor, for asbestos analysis in accordance with United States Environmental Protection Agency (EPA) Test Method 600/R-93/116 using polarized light microscopy (PLM) under chain-of-custody protocol. EMSL Analytical, Inc. is a laboratory accredited by the National Institute of Standards and Technology National Voluntary Laboratory Accreditation Program (NIST-NVLAP) for bulk asbestos fiber analysis. The laboratory analyses were requested on a standard turn-around-time.

Sample identification numbers, material descriptions, approximate quantities, friability assessments, and photo references are summarized on Table 1. Approximate sample locations are presented on Figure 2. Materials represented by the samples collected are shown in the attached photographs.

3.2 Lead Paint

Two bulk paint samples were collected from suspect LCP observed at the project location. We did not observe deteriorated LCP during our survey. Our sampling procedures in accordance with TO-141 are discussed below:

- Collected bulk samples of suspect LCP using techniques presented in HUD guidelines. In addition, the painted areas were evaluated for evidence of deterioration such as flaking or cracking.
- Relinquished bulk LCP samples under chain-of-custody protocol to Advanced Technology Laboratories, a California-licensed and Caltrans-approved subcontractor, for lead analysis in accordance with EPA Test Method 6010B. Advanced Technology Laboratories is accredited by the DPH for lead analysis. The laboratory analysis was requested on a standard turn-around-time.

Paint sample identification numbers, descriptions, peeling and flaking quantities, and photo references are summarized on Table 2. Approximate sample locations are presented on Figure 2. Materials represented by the samples collected are shown in the attached photographs.

4.0 INVESTIGATIVE RESULTS

4.1 Asbestos Analytical Results

Chrysotile asbestos at concentrations of 20% and 25% was detected in samples representing approximately 800 square feet of nonfriable sheet packing used as shims on the bridge barrier rail systems.

Asbestos sheet packing is *assumed* to be present within the bridge box girders at the expansion hinge assemblies.

No asbestos was detected in samples of the remaining suspect materials collected during our survey. A summary of the analytical laboratory test results for asbestos is presented on Table 1. Reproductions of the laboratory reports and chain-of-custody documentation are presented in Appendix A.

4.2 Paint Analytical Results

A sample representing intact yellow traffic striping exhibited a total lead concentration of 750 mg/kg and a WET lead concentration of 4.8 mg/l.

A sample representing intact white traffic striping exhibited a total lead concentration of 8.9 mg/kg.

A summary of the analytical laboratory test results for paint is presented on Table 2. Reproductions of the laboratory reports and chain-of-custody documentation are presented in Appendix A.

5.0 RECOMMENDATIONS

Based on our findings, we recommend the following:

5.1 Asbestos

NESHAP regulations do not require that asbestos-containing sheet packing (a Category I nonfriable/nonhazardous material) identified during our survey be removed prior to demolition or be treated as hazardous waste. However, the disturbance of the material is still covered by the Cal/OSHA asbestos standard (Title 8, CCR Section 1529). We recommend that a licensed contractor registered with Cal/OSHA for asbestos-related work perform any activities that would *disturb* the material. Contractors are responsible for informing the landfill of the contractor's intent to dispose of asbestos waste. Some landfills may require additional waste characterization. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

Geocon also recommends the notification of contractors (that will be conducting renovation or related activities) of the presence of asbestos in their work areas (i.e., provide contractor[s] with a copy of this report and a list of asbestos removed during subsequent activities). Contractors not trained for asbestos work should be instructed not to disturb asbestos during their activities.

Written notification to the North Coast Unified Air Quality Management District (NCUAQMD) is required ten working days prior to commencement of *any* demolition activity (whether asbestos is present or not).

5.2 Lead Paint

Yellow and white traffic striping sampled during our survey would not be classified as California or Federal hazardous based on lead content if stripped, blasted, or otherwise separated from the substrate.

We recommend that all paints at the project location (graffiti, graffiti abatement, signage, etc.) be treated as lead-containing for purposes of determining the applicability of the Cal/OSHA lead standard during any future maintenance, renovation, and demolition activities. This recommendation is based on LCP sample results and the fact that lead was a common ingredient of paints manufactured before 1978 and is still an ingredient of some paints. In accordance with Title 8, CCR, Section 1532.1(p), written notification to the nearest Cal/OSHA district office is required at least 24 hours prior to certain lead-related work. Compliance and training requirements regarding construction activities where workers may be exposed to lead are presented in Title 8, CCR, Section 1532.1, subsections (e) and (l), respectively. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

6.0 REPORT LIMITATIONS

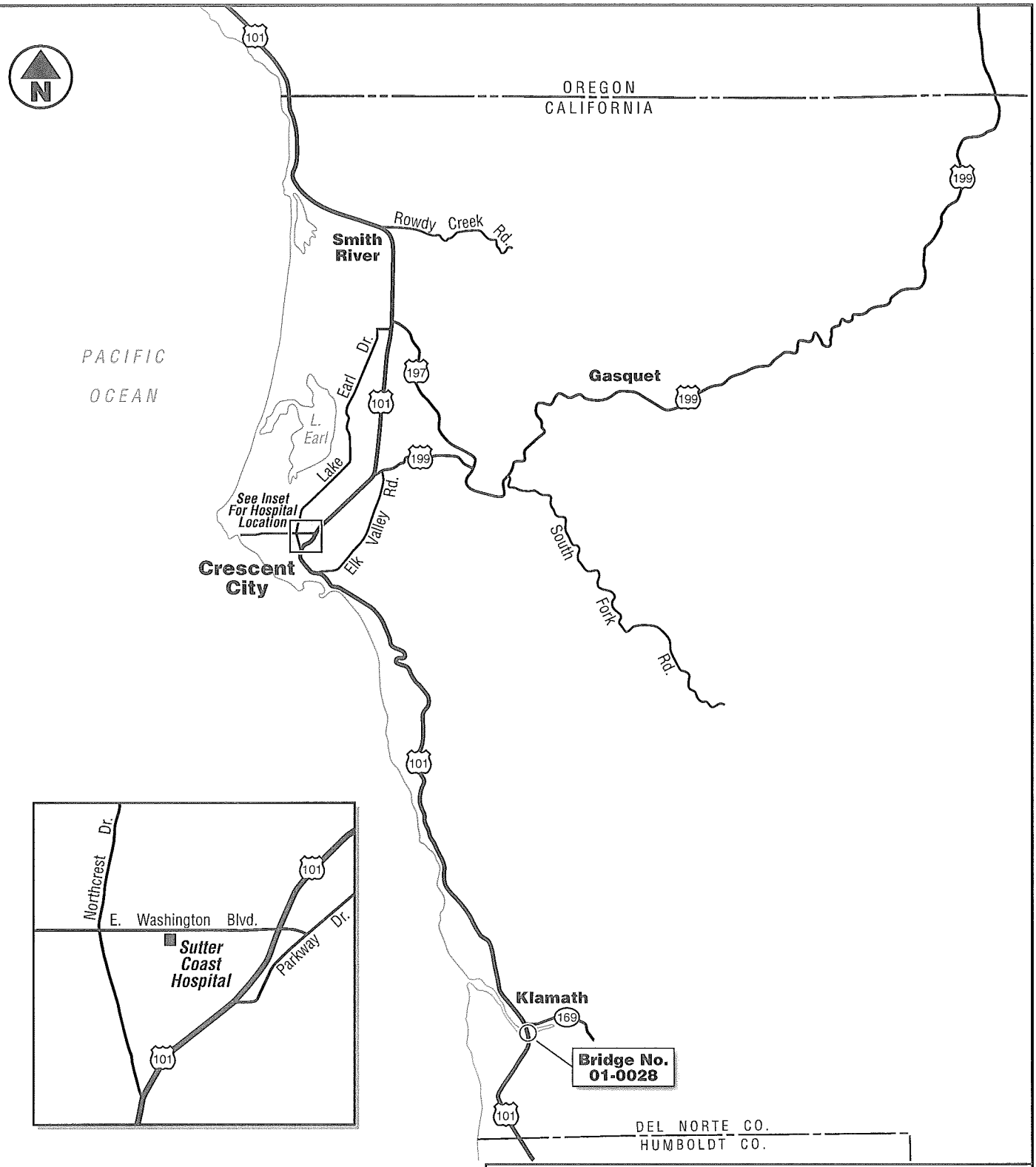
The asbestos and LCP survey was conducted in conformance with generally accepted standards of practice for identifying and evaluating asbestos and LCP in structures. The survey addressed only the structure identified in Section 1.1. Due to the nature of structure surveys, asbestos and LCP use, and laboratory analytical limitations, some ACM or LCP at the project location may not have been identified. Spaces such as cavities, voids, crawlspaces, and pipe chases may have been concealed to our investigator. Previous renovation work may have concealed or covered spaces or materials or may have partially demolished materials and left debris in inaccessible areas. Additionally, renovation activities may have partially replaced ACM with indistinguishable non-ACM. Asbestos and/or LCP may exist in areas of the structure that were not accessible or sampled in conjunction with this TO.

During renovation or demolition operations, suspect materials may be uncovered which are different from those accessible for sampling during this assessment. Personnel in charge of renovation/demolition should be alerted to note materials uncovered during such activities that differ substantially from those included in this or previous assessment reports. If suspect ACM and/or LCP are found, additional sampling and analysis should be performed to determine if the materials contain asbestos or lead.

This report has been prepared exclusively for Caltrans. The information contained herein is only valid as of the date of the report and will require an update to reflect additional information obtained.

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

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



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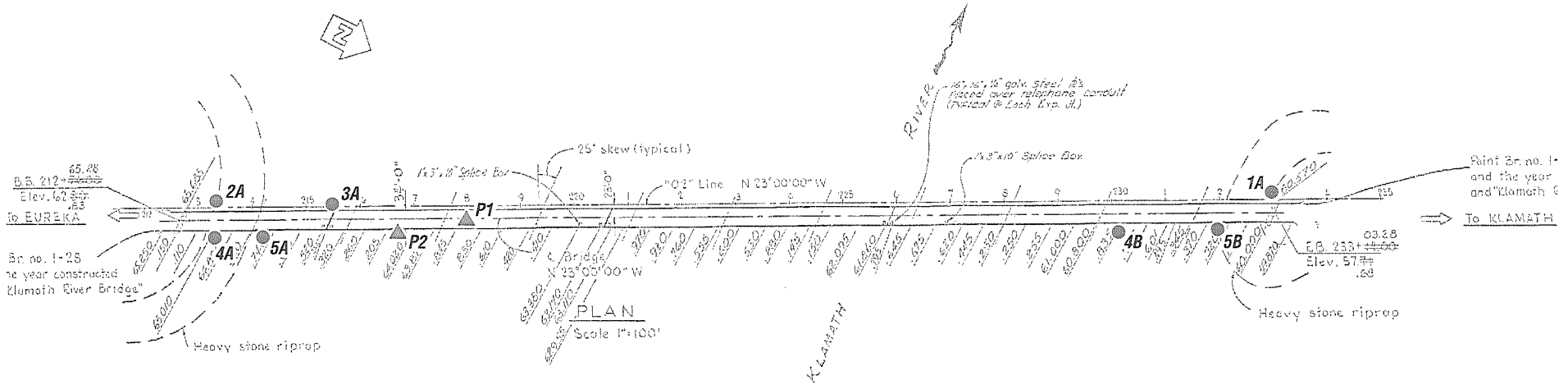
3160 GOLD VALLEY DR. – SUITE 800 - RANCHO CORDOVA, CA. 95742
PHONE 916 852-9118 – FAX 916 852-9132

Klamath River Bridge (01-0028)

Del Norte County, California	VICINITY MAP	
GEOCON Proj. No. S9300-06-141		
Task Order No. 141, EA 01-476900	September 2010	Figure 1



LEGEND:

- Approximate Asbestos Sample Location
- Approximate Paint Sample Location

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Klamath River Bridge (01-0028)		
Del Norte County, California	**SITE PLAN**	
GEOCON Proj. No. S9300-06-141		
Task Order No. 141, EA 01-476900	September 2010	Figure 2

Photo 1 – Bridge deck

Photo 2 – Piers

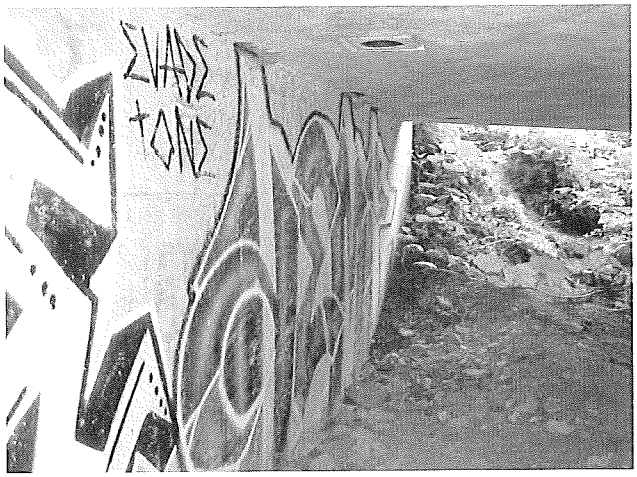

Photo 3 – Abutment

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PHOTOGRAPHS 1, 2, & 3		
Klamath River Bridge (01-0028) Del Norte County, California		
S9300-06-141	Task Order No. 141	September 2010

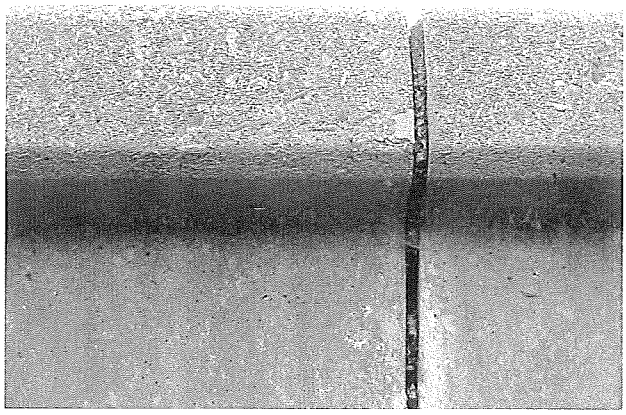

Photo 4 – Expansion joint

Photo 5 – Asbestos sheet packing used as barrier rail shims

Photo 6 – View looking north

GEOCON
CONSULTANTS, INC.
3160 GOLD VALLEY DR – SUITE 800 – RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 – FAX 916.852.9132

TABLE 1
SUMMARY OF ASBESTOS ANALYTICAL RESULTS
KLAMATH RIVER BRIDGE (01-0028)
CALTRANS CONTRACT 03A1638, TASK ORDER NO. 141, EA 01-476900
DEL NORTE COUNTY, CALIFORNIA

Polarized Light Microscopy (PLM) - EPA Test Method 600/R-93/116

Sample No.	Description of Material	Approximate Quantity	Friable	Site Photo	Asbestos Content
0028-1A	Concrete (abutments)	NA	NA	3	ND
0028-2A	Concrete (deck)	NA	NA	1	ND
0028-3A	Concrete (piers)	NA	NA	2	ND
0028-4A and B	Expansion joint fill material	NA	NA	4	ND
0028-5A and B	**Barrier rail shims**	**800 square feet**	**No**	**5**	**20% and 25%**

Notes:

NA = Not applicable (no asbestos detected)

ND = Not detected

TABLE 2
SUMMARY OF PAINT ANALYTICAL RESULTS - TOTAL LEAD
KLAMATH RIVER BRIDGE (01-0028)
CALTRANS CONTRACT 03A1638, TASK ORDER NO. 141, EA 01-476900
DEL NORTE COUNTY, CALIFORNIA

Paint Sample No.	Paint Description	Approximate Quantity Peeling/Flaking	Site Photos	Total Lead (mg/kg)	WET Lead (mg/l)
0028-P1	Yellow traffic striping	Intact	1	750	4.8
0028-P2	White traffic striping	Intact	1	8.9	---

Notes:

mg/kg = milligrams per kilogram (EPA Test Method 6010)
WET = Waste Extraction Test (EPA Test Method 7420)
mg/l = milligrams per liter
--- = Not analyzed

APPENDIX A

EMSL Analytical, Inc.
521 Plymouth Road, Suite 107, Plymouth Meeting, PA 19462
Phone: (610) 828-3102 Fax: (610) 828-3122 Email: plymouthmeetinglab@emsl.com

Attn: **David Watts**
Geocon Consultants
6671 Brisa Street
Livermore, CA 94550

Fax: (925) 371-5915 Phone: (925) 371-5900
Project: **TO-141 / S9300-06-141**

Customer ID: GECN21
Customer PO: S9300-06-141
Received: 08/07/10 9:30 AM
EMSL Order: 181001535

EMSL Proj: S9300-06-**
Analysis Date: 8/10/2010

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	Description	Appearance	% Fibrous	% Non-Fibrous	% Type
0028-1A *181001535-0001*		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
0028-2A *181001535-0002*		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
0028-3A *181001535-0003*		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
0028-4A-Cork *181001535-0004*		Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
0028-4A-Mastic *181001535-0004A*		Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
0028-4B-Cork *181001535-0005*		Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
0028-4B-Mastic *181001535-0005A*		Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

Initial report from 08/11/2010 12:11:55

Analyst(s)

Angela Yohn-Goodling (20)

Angela Yohn-Goodling, Laboratory Manager
or other approved signatory

EMSL Analytical, Inc.
521 Plymouth Road, Suite 107, Plymouth Meeting, PA 19462
Phone: (610) 828-3102 Fax: (610) 828-3122 Email: plymouthmeetinglab@emsl.com

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			Non-Asbestos		Asbestos
Sample	Description	Appearance	% Fibrous	% Non-Fibrous	% Type
0028-5A *181001535-0006*		Gray Fibrous Homogeneous		80% Non-fibrous (other)	**20% Chrysotile**
0028-5B *181001535-0007*		Gray Fibrous Homogeneous		75% Non-fibrous (other)	**25% Chrysotile**
0025-1A *181001535-0008*		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**
0025-2A *181001535-0009*		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**
0025-3A *181001535-0010*		Brown Fibrous Heterogeneous	70% Cellulose	30% Non-fibrous (other)	**None Detected**
0003-1A *181001535-0011*		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**
0003-2A *181001535-0012*		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**

Initial report from 08/11/2010 12:11:55

Analyst(s)

Angela Yohn-Goodling (20)

Angela Yohn-Goodling, Laboratory Manager
or other approved signatory

EMSL Analytical, Inc.
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Analysis Date: 8/10/2010

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	Description	Appearance	% Fibrous	% Non-Fibrous	% Type
0003-3A *181001535-0013*		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
0003-4A *181001535-0014*		Black Fibrous Heterogeneous	2% Cellulose 2% Fibrous (other)	96% Non-fibrous (other)	None Detected
0005-1A *181001535-0015*		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
0005-2A *181001535-0016*		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
0005-3A *181001535-0017*		Various Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
0005-4A *181001535-0018*		Brown Non-Fibrous Heterogeneous	1% Cellulose	99% Non-fibrous (other)	None Detected

Initial report from 08/11/2010 12:11:55

Analyst(s)

Angela Yohn-Goodling (20)

Angela Yohn-Goodling, Laboratory Manager
or other approved signatory

THIS IS THE LAST PAGE OF THE REPORT.

1010-1522

Chain of [illegible]ly Form

1 of 1 ~~0910-1643~~

Project No.: 59300-06-141 Client Name: GEOCON

Report Results to: D. WATTS Office Location: LIVERMORE, CA

Consultants Ph. #: (925) 371-5900 Consultants Fax #: (925) 371-5915

Site Name: TO-141 Building No. —

Analyze sample sets until positive? ☐ Yes ☑ No

Analytical Fee (per sample): $ PLM Date(s) Inspected: 4/26/2010

Other Comments: 5-DAY TAT

Site Address: HUMBOLDT COUNTY, CA

Material Code	Sample Number: Site No.	Sample Number	Material Link No.	Samples Collected: A	B	C	D	E	F	G	H	I	J	K	Not Sampled	Material Description
		0028	1	X												CONCRETE (Ab)
			2	X												(DK)
			3	X												(P)
			4	X	X											JOINT FILL MAT'L (JFM)
			5	X	X											SHIMS
		0025	1	X												CONCRETE (Ab)
			2	X												(DK)
			3	X												JOINT FILL MAT'L
		0003	1	X												CONCRETE (Ab)
			2	X												(DK)
			3	X												(P)
			4	X												JFM
		0005	1	X												CONCRETE (Ab)
			2	X												(DK)
			3	X												(P)
			4	X												JFM

Relinquished by: Print Name: D. WATTS Signature: Date/Time: 5/4/10 1700

Received by: Print Name: UPS Signature: Date/Time: 5/4/10 1700

Relinquished by: Print Name: M. Clancy Signature: Date/Time: 8/9/10 1620 CP

Received by: Print Name: M. Clancy Signature: Date/Time: 8/11/10 0930 CP

Flooring
- CFT = Ceramic floor tile grout/mastic (M)
- F = Floor material-Generic(M)
- FMAS = Floor mastic(M)
- FT = Vinyl composite tile floor (M)
- FS = Vinyl composite sheet floor (M)
- FLC = Floor leveling compound (M)
- TERR = Terrazzo flooring (M)

Wall/Ceiling/Other
- ACOU = Textured acoustical (sprayed) (S)
- BBM = Baseboard mastic (M)
- CM = Ceiling (unspecified type) (M)
- CS = Ceiling (unspecified type) (S)
- CP = Ceiling panel - Lay-in (M)
- CMAS = Ceiling mastic (M)
- CT = Ceiling tile - Splined or nailed (M)
- CTG = Ceiling tile - Glued (M)
- CWT = Ceramic wall tile grout & mastic(M)
- DEBM = Debris (unspecified) (M)
- DEBS = Debris (unspecified) (S)
- DEBT = Debris (unspecified) (TSI)
- DOOR = Door core insulation - Fire door (M)
- OFM = Other friable material (M)
- OFS = Other friable material (S)
- ONFM = Other nonfriable material (M)
- ONFS = Other nonfriable materials (S)
- PL = Plaster (wall or ceiling) (S)
- SHR = Sheetrock (no joint compound) (M)
- SHRJC = Sheetrock with joint compound (M)
- STUC = Stucco (S)
- FP = Structural fireproofing (S)
- TRAN = Transite panel (M)
- TX = Surface texturing on walls/ceiling (S)
- WM = Wall (unspecified type) (M)
- WS = Wall (unspecified type) (S)
- WT = Wall tile - Splined or nailed (M)
- WTG = Wall tile - Glued on (M)

Piping/TSI
- FI = Fitting insulation (type not specified) (TSI)
- FICHW = Fitting - Chilled water system (TSI)
- FICON = Fitting - Condensate (TSI)
- FIDCW = Fitting - Domestic cold water (TSI)
- FIDHW = Fitting - Domestic hot water (TSI)
- FIHHW = Fitting - Heating hot water (TSI)
- FISTM = Fitting - Steam (TSI)
- DI = Duct insulation (TSI)
- DTAPE = HVAC - Duct joint tape/compound (M)
- DFLEX = HVAC - Flexible duct/flex duct joint (M)
- DFLUE = Mech. equipment - Flue insulation (TSI)
- MGSKT = Mech. equipment-Gasket (M)
- MTANK = Mech. equipment-Tank insulation (TSI)
- PI = Pipe insulation (type not specified) (TSI)
- PICHW = Pipe insulation-Chilled water system (TSI)
- PICON = Pipe insulation-Condensate (TSI)
- PIDCW = Pipe insulation-Domestic cold water (TSI)
- PIDHW = Pipe insulation-Domestic hot water (TSI)
- PIHHW = Pipe insulation-Heating hot water (TSI)
- PISTM = Pipe insulation-Steam (TSI)
- PTRAN = Pipe-Transite (M)

Roofing
- RF = Roofing material (M)
- RFAG = Asphalt and gravel (M)
- RFAT = Asphalt roof tile (M)
- RFFLS = Flashing (M)
- RFFLT = Felt material (M)
- RFMAS = Penetration mastic (M)
- RFROL = Rolled sheet type (M)
- RTRAN = Transite shingle (M)

(M) = Miscellaneous material
(S) = Surfacing material
(TSI) = Thermal System Insulation

18

August 20, 2010

Dave Watts
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
TEL: (925) 371-5900
FAX: (925) 371-5915

ELAP No.: 1838
NELAP No.: 02107CA
NEVADA.: CA-401
CSDLAC No.: 10196

Workorder No.: 113142

RE: TO-141 BRIDGES, S9300-06-141

Attention: Dave Watts

Enclosed are the results for sample(s) received on August 09, 2010 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

Eddie F. Rodriguez
Laboratory Director

CLIENT: Geocon Consultants, Inc.
Project: TO-141 BRIDGES, S9300-06-141
Lab Order: 113142

CASE NARRATIVE

Analytical Comments for Method 6010

Dilution was necessary for samples 113142-005A, 113142-008A and 113142-016A, due to sample matrix.

RPD for Duplicate (DUP) is outside criteria for samples 113142-015ADUP and 113145-001ADUP; however, the Laboratory Control Sample (LCS) validated the analytical batch.

Advanced Technology Laboratories *3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040*

CLIENT: Geocon Consultants, Inc. **Lab Order:** 113142
Project: TO-141 BRIDGES, S9300-06-141

Lab ID: 113142-001 **Collection Date:** 8/4/2010 8:31:00 AM
Client Sample ID: 0026-P1 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP10_100811D	QC Batch: 66171			PrepDate:	8/11/2010	Analyst: **JSD**
Lead	75	2.0		mg/Kg	1	8/11/2010 03:24 PM
LEAD BY ATOMIC ABSORPTION (STLC)						
	WET			**WET/ EPA 7420**		
RunID: AA2_100818B	QC Batch: 66283			PrepDate:	8/16/2010	Analyst: **IL**
Lead	0.77	0.25		mg/L	1	8/18/2010 10:06 AM

Lab ID: 113142-002 **Collection Date:** 8/4/2010 8:41:00 AM
Client Sample ID: 0026-P2 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP10_100811D	QC Batch: 66171			PrepDate:	8/11/2010	Analyst: **JSD**
Lead	6.5	2.0		mg/Kg	1	8/11/2010 03:27 PM

Lab ID: 113142-003 **Collection Date:** 8/4/2010 9:11:00 AM
Client Sample ID: 0056-P1 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP10_100811D	QC Batch: 66171			PrepDate:	8/11/2010	Analyst: **JSD**
Lead	810	2.0		mg/Kg	1	8/11/2010 03:29 PM
LEAD BY ATOMIC ABSORPTION (STLC)						
	WET			**WET/ EPA 7420**		
RunID: AA2_100818B	QC Batch: 66283			PrepDate:	8/16/2010	Analyst: **IL**
Lead	1.5	0.25		mg/L	1	8/18/2010 10:07 AM

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

Results are wet unless otherwise specified

CLIENT: Geocon Consultants, Inc. **Lab Order:** 113142
Project: TO-141 BRIDGES, S9300-06-141

Lab ID: 113142-004 **Collection Date:** 8/4/2010 9:17:00 AM
Client Sample ID: 0056-P2 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP10_100811D	QC Batch: 66171			PrepDate:	8/11/2010	Analyst: **JSD**
Lead	7.1	2.0		mg/Kg	1	8/11/2010 03:32 PM

Lab ID: 113142-005 **Collection Date:** 8/4/2010 9:41:00 AM
Client Sample ID: 0057-P1 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP10_100811D	QC Batch: 66171			PrepDate:	8/11/2010	Analyst: **JSD**
Lead	30000	200		mg/Kg	100	8/11/2010 01:32 PM
LEAD BY ATOMIC ABSORPTION (TCLP)						
	EPA3010A			**EPA 1311/ 7420**		
RunID: AA2_100817A	QC Batch: 66302			PrepDate:	8/17/2010	Analyst: **IL**
Lead	2.7	0.25		mg/L	1	8/17/2010 12:38 PM

Lab ID: 113142-006 **Collection Date:** 8/4/2010 9:59:00 AM
Client Sample ID: 0058-P1 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_100811D	QC Batch: 66172			PrepDate:	8/11/2010	Analyst: **SRB**
Lead	1500	2.0		mg/Kg	1	8/11/2010 03:16 PM
LEAD BY ATOMIC ABSORPTION (TCLP)						
	EPA3010A			**EPA 1311/ 7420**		
RunID: AA2_100817A	QC Batch: 66302			PrepDate:	8/17/2010	Analyst: **IL**
Lead	0.41	0.31		mg/L	1	8/17/2010 12:38 PM

Qualifiers:

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

CLIENT: Geocon Consultants, Inc. **Lab Order:** 113142
Project: TO-141 BRIDGES, S9300-06-141

Lab ID: 113142-007 **Collection Date:** 8/4/2010 10:11:00 AM
Client Sample ID: 0058-P2 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_100811D	QC Batch: 66172			PrepDate:	8/11/2010	Analyst: **SRB**
Lead	ND	2.0		mg/Kg	1	8/11/2010 03:21 PM

Lab ID: 113142-008 **Collection Date:** 8/4/2010 11:34:00 AM
Client Sample ID: 0028-P1 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_100811D	QC Batch: 66172			PrepDate:	8/11/2010	Analyst: **SRB**
Lead	750	4.0		mg/Kg	2	8/11/2010 03:25 PM
LEAD BY ATOMIC ABSORPTION (STLC)						
	WET			**WET/ EPA 7420**		
RunID: AA2_100818B	QC Batch: 66283			PrepDate:	8/16/2010	Analyst: **IL**
Lead	4.8	0.25		mg/L	1	8/18/2010 10:07 AM

Lab ID: 113142-009 **Collection Date:** 8/4/2010 11:47:00 AM
Client Sample ID: 0028-P2 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_100811D	QC Batch: 66172			PrepDate:	8/11/2010	Analyst: **SRB**
Lead	8.9	2.0		mg/Kg	1	8/11/2010 03:30 PM

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

Results are wet unless otherwise specified

CLIENT: Geocon Consultants, Inc. **Lab Order:** 113142
Project: TO-141 BRIDGES, S9300-06-141

Lab ID: 113142-010 **Collection Date:** 8/4/2010 12:17:00 PM
Client Sample ID: 0025-P1 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_100811D	QC Batch: 66172			PrepDate:	8/11/2010	Analyst: **SRB**
Lead	340	2.0		mg/Kg	1	8/11/2010 03:34 PM
LEAD BY ATOMIC ABSORPTION (STLC)						
	WET			**WET/ EPA 7420**		
RunID: AA2_100818B	QC Batch: 66283			PrepDate:	8/16/2010	Analyst: **IL**
Lead	1.5	0.25		mg/L	1	8/18/2010 10:07 AM

Lab ID: 113142-011 **Collection Date:** 8/4/2010 12:41:00 PM
Client Sample ID: 0025-P2 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_100811D	QC Batch: 66172			PrepDate:	8/11/2010	Analyst: **SRB**
Lead	4.9	2.0		mg/Kg	1	8/11/2010 05:54 PM

Lab ID: 113142-012 **Collection Date:** 8/4/2010 1:11:00 PM
Client Sample ID: 0003-P1 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_100811D	QC Batch: 66172			PrepDate:	8/11/2010	Analyst: **SRB**
Lead	1000	2.0		mg/Kg	1	8/11/2010 05:58 PM
LEAD BY ATOMIC ABSORPTION (TCLP)						
	EPA3010A			**EPA 1311/ 7420**		
RunID: AA2_100817A	QC Batch: 66302			PrepDate:	8/17/2010	Analyst: **IL**
Lead	ND	0.25		mg/L	1	8/17/2010 12:39 PM

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

Results are wet unless otherwise specified

CLIENT: Geocon Consultants, Inc. **Lab Order:** 113142
Project: TO-141 BRIDGES, S9300-06-141

Lab ID: 113142-013 **Collection Date:** 8/4/2010 1:41:00 PM
Client Sample ID: 0003-P2 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_100811D	QC Batch: 66172			PrepDate:	8/11/2010	Analyst: **SRB**
Lead	2.9	2.0		mg/Kg	1	8/11/2010 06:03 PM

Lab ID: 113142-014 **Collection Date:** 8/4/2010 2:21:00 PM
Client Sample ID: 0005-P1 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_100811D	QC Batch: 66172			PrepDate:	8/11/2010	Analyst: **SRB**
Lead	16	2.0		mg/Kg	1	8/11/2010 06:07 PM

Lab ID: 113142-015 **Collection Date:** 8/4/2010 2:26:00 PM
Client Sample ID: 0005-P2 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_100811D	QC Batch: 66172			PrepDate:	8/11/2010	Analyst: **SRB**
Lead	ND	2.0		mg/Kg	1	8/11/2010 06:19 PM

Lab ID: 113142-016 **Collection Date:** 8/4/2010 3:51:00 PM
Client Sample ID: 0020-P1 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_100811B	QC Batch: 66173			PrepDate:	8/10/2010	Analyst: **SRB**
Lead	1700	4.0		mg/Kg	2	8/11/2010 01:01 PM
LEAD BY ATOMIC ABSORPTION (TCLP)						
	EPA3010A			**EPA 1311/ 7420**		
RunID: AA2_100817A	QC Batch: 66302			PrepDate:	8/17/2010	Analyst: **IL**
Lead	0.93	0.62		mg/L	1	8/17/2010 12:39 PM

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

Results are wet unless otherwise specified

CLIENT: Geocon Consultants, Inc. **Lab Order:** 113142
Project: TO-141 BRIDGES, S9300-06-141

Lab ID: 113142-017 **Collection Date:** 8/4/2010 4:00:00 PM
Client Sample ID: 0020-P2 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_100811B	QC Batch: 66173			PrepDate:	8/10/2010	Analyst: **SRB**
Lead	3.2	2.0		mg/Kg	1	8/11/2010 03:05 PM

Lab ID: 113142-018 **Collection Date:** 8/4/2010 4:14:00 PM
Client Sample ID: 0020-P3 **Matrix:** PAINT

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_100811B	QC Batch: 66173			PrepDate:	8/10/2010	Analyst: **SRB**
Lead	35	5.0		mg/Kg	1	8/11/2010 03:09 PM

Qualifiers:

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

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

Advanced Technology Laboratories

Date: *20-Aug-10*

CLIENT: Geocon Consultants, Inc.
Work Order: 113142
Project: TO-141 BRIDGES, S9300-06-141

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: MB-66171	SampType: MBLK	TestCode: 6010_S	Units: mg/Kg	Prep Date: 8/11/2010	RunNo: 124135
Client ID: PBS	Batch ID: 66171	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 8/11/2010	SeqNo: 1994017

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.0									

Sample ID: LCS-66171	SampType: LCS	TestCode: 6010_S	Units: mg/Kg	Prep Date: 8/11/2010	RunNo: 124135
Client ID: LCSS	Batch ID: 66171	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 8/11/2010	SeqNo: 1994018

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	51.444	1.0	50.00	0	103	80	120				

Sample ID: MB-66171-MS	SampType: MS	TestCode: 6010_S	Units: mg/Kg	Prep Date: 8/11/2010	RunNo: 124135
Client ID: ZZZZZZ	Batch ID: 66171	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 8/11/2010	SeqNo: 1994019

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	125.640	1.0	125.0	0	101	34	126				

Sample ID: MB-66171-MSD	SampType: MSD	TestCode: 6010_S	Units: mg/Kg	Prep Date: 8/11/2010	RunNo: 124135
Client ID: ZZZZZZ	Batch ID: 66171	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 8/11/2010	SeqNo: 1994020

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	133.331	1.0	125.0	0	107	34	126	125.6	5.94	20	

Sample ID: 113142-005A-DUP	SampType: DUP	TestCode: 6010_S	Units: mg/Kg	Prep Date: 8/11/2010	RunNo: 124135
Client ID: 0057-P1	Batch ID: 66171	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 8/11/2010	SeqNo: 1994031

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	34888.140	200						30390	13.8	20	

Qualifiers:

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

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Work Order: 113142
Project: TO-141 BRIDGES, S9300-06-141

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: MB-66172	SampType: MBLK	TestCode: 6010_S	Units: mg/Kg	Prep Date: 8/11/2010	RunNo: 124150
Client ID: PBS	Batch ID: 66172	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 8/11/2010	SeqNo: 1994449

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.180	1.0									

Sample ID: LCS-66172	SampType: LCS	TestCode: 6010_S	Units: mg/Kg	Prep Date: 8/11/2010	RunNo: 124150
Client ID: LCSS	Batch ID: 66172	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 8/11/2010	SeqNo: 1994450

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	51.516	1.0	50.00	0.1795	103	80	120				

Sample ID: MB-66172-MS	SampType: MS	TestCode: 6010_S	Units: mg/Kg	Prep Date: 8/11/2010	RunNo: 124150
Client ID: ZZZZZZ	Batch ID: 66172	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 8/11/2010	SeqNo: 1994451

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	118.103	1.0	125.0	0.1795	94.3	34	126				

Sample ID: MB-66172-MSD	SampType: MSD	TestCode: 6010_S	Units: mg/Kg	Prep Date: 8/11/2010	RunNo: 124150
Client ID: ZZZZZZ	Batch ID: 66172	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 8/11/2010	SeqNo: 1994452

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	118.664	1.0	125.0	0.1795	94.8	34	126	118.1	0.474	20	

Sample ID: 113142-015A-DUP	SampType: DUP	TestCode: 6010_S	Units: mg/Kg	Prep Date: 8/11/2010	RunNo: 124150
Client ID: 0005-P2	Batch ID: 66172	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 8/11/2010	SeqNo: 1994463

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.112	2.0						0.7345	96.8	20	R

Qualifiers:

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

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Work Order: 113142
Project: TO-141 BRIDGES, S9300-06-141

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: MB-66173	SampType: MBLK	TestCode: 6010_S	Units: mg/Kg	Prep Date: 8/10/2010	RunNo: 124144
Client ID: PBS	Batch ID: 66173	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 8/11/2010	SeqNo: 1994367

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.267	1.0									

Sample ID: LCS-66173	SampType: LCS	TestCode: 6010_S	Units: mg/Kg	Prep Date: 8/10/2010	RunNo: 124144
Client ID: LCSS	Batch ID: 66173	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 8/11/2010	SeqNo: 1994368

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	52.561	1.0	50.00	0.2668	105	80	120				

Sample ID: MB-66173-MS	SampType: MS	TestCode: 6010_S	Units: mg/Kg	Prep Date: 8/10/2010	RunNo: 124144
Client ID: ZZZZZZ	Batch ID: 66173	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 8/11/2010	SeqNo: 1994369

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	123.889	1.0	125.0	0.2668	98.9	34	126				

Sample ID: MB-66173-MSD	SampType: MSD	TestCode: 6010_S	Units: mg/Kg	Prep Date: 8/10/2010	RunNo: 124144
Client ID: ZZZZZZ	Batch ID: 66173	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 8/11/2010	SeqNo: 1994370

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	120.468	1.0	125.0	0.2668	96.2	34	126	123.9	2.80	20	

Sample ID: 113145-001A-DUP	SampType: DUP	TestCode: 6010_S	Units: mg/Kg	Prep Date: 8/10/2010	RunNo: 124144
Client ID: ZZZZZZ	Batch ID: 66173	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 8/11/2010	SeqNo: 1994379

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1140.306	4.0						644.6	55.5	20	R

Qualifiers:

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

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Work Order: 113142
Project: TO-141 BRIDGES, S9300-06-141

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_ST

Sample ID: MB-66283A	SampType: MBLK	TestCode: 7420_ST	Units: mg/L	Prep Date: 8/16/2010	RunNo: 124298
Client ID: PBS	Batch ID: 66283	TestNo: WET/ EPA 74 WET		Analysis Date: 8/18/2010	SeqNo: 1997089

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: LCS-66283	SampType: LCS	TestCode: 7420_ST	Units: mg/L	Prep Date: 8/16/2010	RunNo: 124298
Client ID: LCSS	Batch ID: 66283	TestNo: WET/ EPA 74 WET		Analysis Date: 8/18/2010	SeqNo: 1997090

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.165	0.25	5.000	0	103	80	120				

Sample ID: 113144-013A-DUP	SampType: DUP	TestCode: 7420_ST	Units: mg/L	Prep Date: 8/16/2010	RunNo: 124298
Client ID: ZZZZZZ	Batch ID: 66283	TestNo: WET/ EPA 74 WET		Analysis Date: 8/18/2010	SeqNo: 1997102

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	3.662	0.25						3.735	1.97	20	

Sample ID: 113144-013A-MS	SampType: MS	TestCode: 7420_ST	Units: mg/L	Prep Date: 8/16/2010	RunNo: 124298
Client ID: ZZZZZZ	Batch ID: 66283	TestNo: WET/ EPA 74 WET		Analysis Date: 8/18/2010	SeqNo: 1997103

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	8.176	0.25	5.000	3.735	88.8	80	120				

Sample ID: MB-66283B	SampType: MBLK	TestCode: 7420_ST	Units: mg/L	Prep Date: 8/16/2010	RunNo: 124298
Client ID: PBS	Batch ID: 66283	TestNo: WET/ EPA 74 WET		Analysis Date: 8/18/2010	SeqNo: 1997104

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Work Order: 113142
Project: TO-141 BRIDGES, S9300-06-141

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_TC

Sample ID: MB-66302	SampType: MBLK	TestCode: 7420_TC	Units: mg/L	Prep Date: 8/17/2010	RunNo: 124269
Client ID: PBS	Batch ID: 66302	TestNo: EPA 1311/ 74	EPA3010A	Analysis Date: 8/17/2010	SeqNo: 1996663

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: MB-66288A TCLP	SampType: MBLK	TestCode: 7420_TC	Units: mg/L	Prep Date: 8/17/2010	RunNo: 124269
Client ID: PBS	Batch ID: 66302	TestNo: EPA 1311/ 74	EPA3010A	Analysis Date: 8/17/2010	SeqNo: 1996664

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: LCS-66302	SampType: LCS	TestCode: 7420_TC	Units: mg/L	Prep Date: 8/17/2010	RunNo: 124269
Client ID: LCSS	Batch ID: 66302	TestNo: EPA 1311/ 74	EPA3010A	Analysis Date: 8/17/2010	SeqNo: 1996665

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.135	0.25	1.000	0	113	80	120				

Sample ID: 113143-001A-DUP	SampType: DUP	TestCode: 7420_TC	Units: mg/L	Prep Date: 8/17/2010	RunNo: 124269
Client ID: ZZZZZZ	Batch ID: 66302	TestNo: EPA 1311/ 74	EPA3010A	Analysis Date: 8/17/2010	SeqNo: 1996674

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.641	0.25						2.621	0.768	20	

Sample ID: 113143-001A-MS	SampType: MS	TestCode: 7420_TC	Units: mg/L	Prep Date: 8/17/2010	RunNo: 124269
Client ID: ZZZZZZ	Batch ID: 66302	TestNo: EPA 1311/ 74	EPA3010A	Analysis Date: 8/17/2010	SeqNo: 1996675

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.011	0.25	2.500	2.621	95.6	70	130				

Qualifiers:

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

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Work Order: 113142
Project: TO-141 BRIDGES, S9300-06-141

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_TC

Sample ID: 113143-001A-MSD	SampType: MSD	TestCode: 7420_TC	Units: mg/L	Prep Date: 8/17/2010	RunNo: 124269
Client ID: ZZZZZZ	Batch ID: 66302	TestNo: EPA 1311/ 74 EPA3010A		Analysis Date: 8/17/2010	SeqNo: 1996676

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.021	0.25	2.500	2.621	96.0	70	130	5.011	0.204	20	

Qualifiers:

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

CHAIN OF CUSTODY RECORD

Pg 1 of 2

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
(562) 989-4045 • Fax (562) 989-4040

FOR LABORATORY USE ONLY:

P.O.#: _____

Logged By: _____ Date: 8/9/10

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FEDEX ☐ Other: UPS

Sample Condition Upon Receipt: 23.4

1. CHILLED	Y☐ N☑	4. SEALED	Y☐ N☑
2. HEADSPACE (VOA)	Y☐ N☐ NA	5. # OF SPLS MATCH COC	Y☑ N☐
3. CONTAINER INTACT	Y☑ N☐	6. PRESERVED	Y☐ N☑

Client: GEOCON
Attn: D. WATTS
Address: 6671 BRISA ST
City LIVERMORE State CA Zip Code 94550
TEL: (925) 371-5900
FAX: (") " 5915

Project Name: TO-141 BRUHES Project #: 9300-06-141 Sampler: (Printed Name) D. WATTS (Signature)

Relinquished by: (Signature and Printed Name)	Date: 8/5/10	Time: 1700	Received by: (Signature and Printed Name) UPS	Date: 8/5/10	Time: 1700
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name) Mary Cliff	Date: 8/9/10	Time: 945
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:

I hereby authorize ATL to perform the work indicated below:
Project Mgr./Submitter:
D. WATTS 8/5/10
Print Name Date
Signature

Send Report To:
Attn: _____
Co: _____
Address _____
City _____ State _____ Zip _____

Bill To:
Attn: _____
Co: _____
Address _____
City _____ State _____ Zip _____

Special Instructions/Comments:
RETURN COOLERS ASAP, PLEASE

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.

Storage Fees (applies when storage is requested):
- Sample : $2.00 / sample / mo (after 45 days)
- Records : $1.00 / ATL workorder / mo (after 1 year)

Circle or Add Analysis(es) Requested

SPECIFY APPROPRIATE MATRIX

PRESERVATION

QA/QC: RTNE ☐ CT ☑ SWRCB ☐ Logcode ____ OTHER ____

ITEM	LAB USE ONLY: Batch # / Lab No.	Sample Description: Sample I.D. / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal) - Pb	8015B (GRO) / 8020 (BTEX)	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	SOIL	WATER	GROUND WATER	WASTEWATER	TAT	Container(s) #	Container(s) Type	REMARKS
	113142-001	0026 - P1	8/4/10	0821				X									X	E	1	P	
	2	0026 - P2		0841																	
	3	0056 - P1		0911																	
	4	0056 - P2		0917																	
	5	0057 - P1		0941																	
	6	0058 - P1		0959																	
	7	0058 - P2		1011																	
	8	0028 - P1		1134																	
	9	0028 - P2		1147																	

- TAT starts 8 a.m. following day if samples received after 3 p.m.

TAT: A= Overnight ≤ 24 hr B= Emergency Next workday C= Critical 2 Workdays D= Urgent 3 Workdays E= Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives:
H=Hcl N=HNO_3 S=H_2SO_4 C=4°C
Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

DISTRIBUTION: White with report, Yellow to folder, Pink to submitter.

CHAIN OF CUSTODY RECORD

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
(562) 989-4045 • Fax (562) 989-4040

FOR LABORATORY USE ONLY:

P.O.#: _____

Logged By: _____ Date: _____

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FEDEX ☐ Other: _____

Sample Condition Upon Receipt
1. CHILLED Y☐ N☐ 4. SEALED Y☐ N☐
2. HEADSPACE (VOA) Y☐ N☐ 5. # OF SPLS MATCH COC Y☐ N☐
3. CONTAINER INTACT Y☐ N☐ 6. PRESERVED Y☐ N☐

Client: Address: TEL: ( )
Attn: See pg 1 City State Zip Code FAX: ( )
Project Name: See pg 1 Project #: Sampler: (Printed Name) (Signature)

Relinquished by: (Signature and Printed Name)	Date :	Time:	Received by: (Signature and Printed Name)	Date: 8/9/10	Time: 935
Relinquished by: (Signature and Printed Name)	Date :	Time:	Received by: (Signature and Printed Name)	Date:	Time:
Relinquished by: (Signature and Printed Name)	Date :	Time:	Received by: (Signature and Printed Name)	Date:	Time:

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter: See pg 1
Print Name Date
Signature

Send Report To:
Attn: _____
Co: _____
Address _____
City _____ State_____ Zip_____

Bill To:
Attn: _____
Co: _____
Address _____
City _____ State_____ Zip_____

Special Instructions/Comments:
TO-141 Branch
59300-06-141

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.

Storage Fees (applies when storage is requested):
- Sample : $2.00 / sample / mo (after 45 days)
- Records : $1.00 / ATL workorder / mo (after 1 year)

Circle or Add Analysis(es) Requested: 8081A (Pesticides); 8082 (PCB); 8260B (Volatiles); 8270C (BNA); 6010B (Total Metal) - Pb; 8015B (GRO) / 8020 (BTEX); 8015B (DRO); 8021 (BTEX); TITLE 22 / CAM 17 (6010 / 7000)

SPECIFY APPROPRIATE MATRIX: SOIL; WATER; GROUND WATER; WASTEWATER; Tank wtr

PRESERVATION

QA/QC: RTNE ☐ CT ☑ SWRCB ☐ Logcode ____ OTHER ____

ITEM	LAB USE ONLY: Batch #: / Lab No.	Sample Description: Sample I.D. / Location	Date	Time	TAT	Container(s): #	Container(s): Type	REMARKS
	113142-10	0025 - P1	8/4/10	1217	E	1	Bag P	
	11	↓ - P2		1241				
	12	0003 - P1		1311				
	13	↓ - P2		1341				
	14	0005 - P1		1421				
	15	↓ - P2		1426				
	16	0020 - P1		1551				
	17	↓ - P2		1606				
	18	↓ - P3	↓	1614	↓	↓	↓	

- TAT starts 8 a.m. following day if samples received after 3 p.m.

TAT: A= Overnight ≤ 24 hr B= Emergency Next workday C= Critical 2 Workdays D= Urgent 3 Workdays E= Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

DISTRIBUTION: White with report, Yellow to folder, Pink to submitter.

Diane Galvan

From: David Watts [watts@geoconinc.com]
Sent: Tuesday, August 10, 2010 9:33 AM
To: Diane Galvan
Subject: S9300-06-141 & E8415-06-103

(Humboldt – Del Norte and Eureka PV surveys)

For lead (soil and paint) analyses on these jobs:

Please run TCLPs on samples that fail TTLC (1000 ppm or greater).
Please run WETs on samples with a TTLC between 50 and 999 ppm.
Please run TCLPs on samples that fail WET that also have a TTLC of 100 ppm or greater.
Standard TATs.

Thanks.

David Watts
Senior Project Scientist
Please visit our website at http://www.geoconinc.com

GEOCON Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
925-371-5900 (office)
925-371-5915 (fax)
925-785-5340 (mobile)
watts@geoconinc.com

GEOTECHNICAL - ENVIRONMENTAL - MATERIALS

San Diego Murrieta Burbank Bakersfield Fresno Sacramento Rocklin Fairfield Livermore Carson City Portland

Bird and Bat Exclusion and Protection Plan for the Klamath River Bridge Hinge Replacement Project December 2011

Del Norte County
United States 101, Post Mile 4.04/4.42
01-47690

Table of Contents

Summary

The California Department of Transportation (Caltrans) plans to protect birds and bats in the vicinity of the Klamath River Bridge during the replacement of three hinges. Specifically, cliff swallows and bats will be excluded from portions of the bridge to protect them from disturbance, and from impacts that may occur due to elevated noise and vibration during work. Exclusion will be done with devices that will prevent nesting by cliff swallows and roosting by bats, without morbidity or mortality to birds and bats. Exclusion devices will be installed on the bridge hinges and box girders between November 15 and February 28, when bats and birds are not expected to be present, prior to the season of construction. Caltrans estimates that an appropriate distance to exclude swallows from work is 100 feet to the north and 100 feet to the south of each hinge, and an appropriate method to exclude bats from work is to prevent them from entering the box girders adjacent to the hinges to be replaced. Adequate swallow and bat habitat will be available on the bridge during construction. All exclusionary measures will be removed when swallow- and bat-disturbing activities are completed at each location, before the next breeding season. After completion of work, swallow nesting habitat will remain the same, and bat habitat will likely be improved, compared to the bridge habitat before hinge replacement.

Project Description

Caltrans is proposing to replace hinges at spans 2, 8 and 11 on the Klamath River Bridge. The project is located on United States 101 in Del Norte County from Post Mile 4.04 to 4.42. The hinges are in the early stages of failure with structural concrete cracks reported at all three hinges. Work would include the demolition and reconstruction of the three hinges, installation and removal of temporary supports and temporary foundations, and the temporary relocation of utilities. Approximately 25 feet of bridge, bridge deck, and bridge rail would be reconstructed at each hinge location. In addition, a methacrylate seal and traffic striping would be placed on the bridge deck, and a 12 inch by 12 inch by 1 inch concrete section of bridge would be repaired.

Since this project is near the Klamath River, work will take place between mid-May and mid-October during the low flow season, due to water quality concerns.

Chapter 1 BIRDS

1.1 Known Bird Presence and Use

1.1.1 Bird Species Present

Many bird species use the habitat surrounding the bridge (see Appendix 1) for foraging, roosting and nesting. However, during numerous avian surveys and other visits (totaling at least 25 visits, conducted throughout all the months over three years) to the bridge site, only two species, cliff swallows (*Petrochelidon pyrrhonota*) and European starlings (*Sturnus vulgaris*), have been observed using the bridge structure itself. Based on the site visits and lack of suitable habitat, it is unlikely other bird species inhabit the bridge.

European starlings are non-native, and considered invasive species that compete with native bird species (USDA, 2011). They are not protected under the Federal Migratory Bird Treaty Act, and in California, they may be taken at any time of the year and in any number (Section 472, Title 14, of the CCR). Starlings nest in scupper holes in both the soffit and the tops of piers. No measures will be taken to protect them.

Because vegetation in which native birds may nest will be removed outside of the breeding season, no impacts are expected for any bird species other than the two species nesting on the bridge. Thus, this plan focuses on the project's effects on cliff swallows.

1.1.2 Conservation Status, Pertinent Characteristics and Nesting Habits of Cliff Swallows on the Bridge

Cliff swallows do not have special State or Federal status, but are protected under the Federal Migratory Bird Treaty Act. They build nests by attaching mud pellets to vertical and overhanging surfaces. Breeding habitat has been enhanced by widespread construction of bridges, culverts, and buildings which provide alternative nesting sites (Brown and Brown 1995). Cliff swallows are colonial nesters, choosing a colony site first, and then establishing ownership of nesting space. The time it takes to build a nest varies, principally in response to weather. Nest construction can range from 3-27 days, but usually takes 1 to 2 weeks. Egg-laying usually begins before the nest is completely finished, with one egg laid each day until the clutch of three to four eggs is completed. Laying within a colony is highly synchronous, though the date of egg laying has also been found to vary within some colonies (Brown and Brown, 1995; USDA, 2011; UC-IPM, 2011).

Swallows nest along much of the length of the Klamath River Bridge, on both the east and west sides, as well as at the tops of the piers, and appear to prefer locations over the river. Nest locations and numbers vary from year to year, but the bridge usually supports several hundred nests annually. Cliff swallows have been documented as early as March 23 in the project area, though they were not yet building nests. Nest building has been reported beginning as early as April in the region (Hunter et al., 2005). A few swallows were documented tending nests at the bridge as late as August 10.

1.2 Potential for Disturbance to Cliff Swallows

There is little evidence of any appreciable harm caused by humans to cliff swallows. These birds are "extremely tolerant of disturbance by humans and rarely abandon nests," unless their access is blocked (e.g., by construction) or their nests get wet and fall (Brown and Brown, 1995).

1.2.1 Effects of Construction Noise and Vibration on Swallows and Bats Nesting or Roosting on the Bridge

A thorough literature review and investigation provided few studies on the effects of highway and construction noise or vibration on birds and bats, and most is inconclusive (Caltrans, 2009; Dooling and Popper, 2007; FHWA, 2006). Furthermore, in most studies, the overall level of the noise is measured in units of dBA sound pressure level, the frequency range of human hearing. This does not likely provide an accurate estimate of the noise level in the frequency region where birds (or bats) hear and communicate, which extends beyond human range (Caltrans, 2009; Dooling and Popper, 2007). Instead, it provides only a crude estimate, most likely an overestimate, of masking effects of noise on vocal communication in these animals. Popper and Dooling (2007) concluded that the overall level in dBA is a very conservative estimate of the effects of highway noise on communication in birds.

Despite the limitations in available research, studies have shown that birds and other animals exhibit a threshold shift in hearing sensitivity in response to sounds that are sufficiently long and/or intense, and these shifts are often not permanent. There is evidence that some species can adapt to moderate increases of background noise (Caltrans, 2009).

Little is known about the effect of high level impulse sounds, such as from construction equipment, on avian hearing. However, some studies show that birds can tolerate continuous (e.g. up to 72 hours) exposure to noises up to 110 dBA without experiencing permanent hearing damage or permanent threshold shift (Caltrans, 2009; Dooling and Popper, 2007). In contrast to traffic noise, noise from construction equipment acts like a point source and will typically drop

off at a rate of 6 dB per doubling of distance, although there is also likely to be an added component of additional attenuation that varies with the environment (Caltrans, 2009).

The most specific guidance available for assessing potential effects of construction noise on birds is the Arcata Fish and Wildlife Service Office of the U.S. Fish and Wildlife Service (USFWS)-issued G*uidance for estimating the effects of auditory and visual disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California* (USFWS, 2006). While this is useful in assessing effects to Northern Spotted Owl (NSO) and Marbled Murrelet (MAMU), it may not be as relevant in assessing impacts to swallows or bats. Still, because it is some of the best science available, it was used as guidance here.

One limitation of the USFWS guidance is that it is based on limited data from one species. The variations in noise effects and degrees of adaptation between species make it difficult to set tolerance levels (Caltrans, 2009). There are significant species differences in the ability to hear in noisy environments. These differences suggest that one model is not likely to fit all species under all conditions. Moreover, how a bird integrates acoustic (i.e., noise) and visual stimuli in different contexts (e.g., breeding season or brooding) will have a profound effect on whether harassment occurs. For example, very low level sounds bearing some resemblance to the sounds of a natural predator are likely to be far more important to the bird than other sounds with no history of signaling danger. Such experiential factors will undoubtedly vary significantly by species (Dooling and Popper, 2007).

Given the lack of empirical data on this point, Dooling and Popper (2007) recommend using subjective human experience with the noise in question as an Interim Guideline for estimating acceptable noise levels for avoiding stress and physiological effects. Noise types and levels that appear to increase stress and adverse physiological reactions in humans may also have similar consequences in birds.

Thus, the *Memorandum on the Klamath Bridge Hinge Repair Underwater Analysis* (Caltrans, 2011), which includes an analysis of vibration and airborne noise effects (in human terms) was used in conjunction with the USFWS (2006) Guidance in developing protective measures for birds and bats, and in determining an appropriate distance at which to exclude them from the source of construction noise and vibration.

1.2.2 Estimating Distance at which to Exclude Swallows and Bats

Equipment that may be used during construction includes: excavators, dozers, scrapers, cranes, boom trucks, hoe rams, jackhammers, backhoes, concrete mixers, concrete pumps (truck or

trailer mounted) flatbed trucks and dump trucks, generators, air compressors, saws, pumps, and storage containers. Of these, the loudest noise-producing equipment are shown in Table1.

Table 1. Equipment producing noise levels over 80 dBA at the Klamath River Bridge Hinge Replacement Project.

Equipment	Acoustical Use Factor (%)	dBA, estimated or measured at 50 ft from the source
Back-up alarm	5	90
Hoe ram	10	80-90
Jackhammer	20	85-89

The acoustic use factor is the percentage of time each piece of construction equipment is assumed to be operating at full power (i.e., its loudest condition) during construction. None of the equipment will produce continuous noise.

Using the USFWS guidance for NSO and MAMU (2006), the ambient sound level at the bridge is estimated to range from moderate (71-80 dBA) to high (81-90 dBA), due to traffic noise on the bridge. Thus, for most project activities, which would produce noise levels of 80 dBA or less (moderate action-generated sound-level), the estimated distance out to which harassment would occur to NSO and MAMU would be zero feet. For the project activities using the loudest equipment, with dBA of 81-90 dBA (high action-generated sound-level), the estimated distance out to which harassment would occur would be 165 feet. By extrapolation, this is the estimated harassment distance for swallows and bats. Referencing the Caltrans (2011) memo on noise and vibration effects at the Klamath River Bridge, the airborne noise from the hoe ram will drop to an average 74 dBA and a maximum of 84 dBA at 100 feet from the source.

Referencing the Caltrans (2011) memo on noise and vibration and effects at the Klamath River Bridge, the strongest vibrations will be produced by hoe rams. Measured 25 feet from the source, a hoe ram produces a peak particle velocity (PPV; the commonly accepted descriptor of the vibration amplitude) of 0.089. Hoe rams typically emit single-impact (transient), or low-rate repeated impact vibration. Thus, the vibration produced by these would be more than barely perceptible (threshold of 0.035 PPV) but much less than distinctly perceptible (threshold of 0.24 PPV) to humans -and, by extension, to swallows and bats, 25 feet away.

Thus, Caltrans estimates that an appropriate distance to exclude swallows from work is 100 feet to the north and 100 feet to the south of each hinge. This distance of 100 feet from the point source of noise and vibration (i.e. at each hinge) is based on the goal of keeping swallows a safe distance from disturbance while leaving adequate nesting habitat available. A further distance

out from each hinge could be excluded, but this would encroach considerably on the quantity of nesting space (see *Impacts and Effects on Birds-Roosting Sites Available During Construction*, p. 11). Furthermore, there is no substantial evidence to support a greater distance, and cliff swallows are documented as extremely tolerant of disturbance by humans.

1.3 Swallow Exclusion

1.3.1 Types, Methods, and Scope of Work for Swallow Exclusion

GUIDELINES/PARAMETERS

1. Between November 1 and February 28, exclusion will be installed; take preventative measures to eliminate the re-occupancy of the existing bridge structure by migratory bird species that will attempt to nest on the structure.

2. Exclusion will be done with devices that will prevent roosting and nesting without morbidity or mortality to birds and bats. Exclusion must be designed so it does not trap or entangle birds or bats.

3. Methodology will entail draping and tightly securing all edges of 100% exclusionary filter fabric along the sides of the bridge and top of the piers. Extreme care must be taken to ensure that no gaps or folds occur within the fabric coverage. The fabric must remain taut and not sag or develop holes. If it does, it must be promptly repaired

4. Only those hinges that will be worked on within the year will have exclusion installed, so that available swallow nesting sites are not unnecessarily restricted - e.g. Hinge 2 will be excluded one year and hinges 8 and 11 the other year (unless all three hinges will be repaired in one year).

5. A qualified biologist will inspect the bridge for birds and bats prior to installation of the exclusion. They will also inspect the bridge weekly to daily, depending on the presence and activity of swallows for the duration of the construction activity until post-bird nesting-use is documented, or September 30, whichever comes first. Site visits will entail inspection of any exclusionary measures to ensure that there are no flaws that would allow bird/bat access or bird/bat entanglement, and to make sure that bird nesting is not occurring within the exclusion zones.

6. A qualified biologist will study the construction-related effects (e.g., noise, vibration) on swallows and nests outside of the exclusion zone. Adjustments to the length of

exclusion will be made the following season (if the project takes more than one season), in accordance with these findings.

7. Swallows are strongly attracted to old nests or to the remnants of deteriorated nests, but it is unlikely that Caltrans will be allowed to wash off nests, especially at Hinge 8, which is close to the river, due to water quality concerns.

8. If swallows have eggs or young in the nest (i.e., due to unexpected early nesting), exclusion may not be used until the Resident Engineer (RE) has consulted with the project biologist on how to proceed.

SPECIFICS

Exclusion will be done with devices that will prevent roosting and nesting by birds, particularly cliff swallows, without morbidity or mortality to bats and birds. Exclusion must be designed so it does not trap or entangle bats or birds.

Swallows do not nest on the underside of the bridge deck (soffit) – they use the sections of the bridge where horizontal surfaces creates 90^{o} angles with the vertical surfaces; i.e. at the tops of the piers where they meet the underside of the bridge, and at the angle formed along the entire length of the bridge, where the overhang meets the side of the bridge deck.

Exclusion will consist of non-woven RSP filter fabric. Filter fabric will be durable in the potentially windy conditions, and will not pose the threat of entangling bats as netting might. Filter fabric was used successfully on a recent bridge exclusion project on Highway 169. Exclusion will be installed 100 feet out from the center of each hinge, along the length of the bridge (200 feet total length for each hinge); thus, there will be 600 feet of exclusion along the length of one side of the bridge, totaling 1,200 feet of exclusion for the entire bridge (see diagrams in Appendix 2). The tops of three piers will also be excluded. These will include: at Hinge 2, the top of Pier 3, at Hinge 8, the top of Pier 9, and at Hinge 11, the top of Pier 12. Each pier has a circumference of 62 feet; thus, an additional 186 feet of swallow nesting area will be excluded.

Along the length of the bridge, the fabric will be attached from the side of the overhang to the side of the bridge deck (see Appendix 2). To attach the fabric, a concrete nail gun (22-charge gun) will be used to drive nails through plywood strips (which will hold the fabric down) into the concrete, making certain the fabric extends out from both edges of the plywood strips so that the fabric is securely tightened.

At the tops of the piers, the fabric can be secured using the plywood strips and nail gun method to attach the top of the exclusion to the soffit. At the bottom edge of the exclusion, the fabric will be secured to the sides of the pier. The most likely method would be to allow a 6-8 foot length of the fabric to hang down, and cinch it down tight with cable, allowing several feet of fabric to extend well below the cinching point.

All exclusionary measures will be removed when swallow-disturbing activities are completed at each location, before the next breeding season.

1.4 Additional Avoidance and Minimization Measures to Protect Birds

In order to avoid and minimize the potential effects on migratory birds, the following measures will be taken:

- Vegetation will be removed outside of the bird breeding season (between September 1 and February 28). Surveys will be performed for hummingbird nesting activity by a qualified biologist prior to any vegetation trimming that occurs in January through February, since hummingbirds could be nesting in the area at this time.
- If vegetation has not been cleared outside of the breeding season (if cleared between March 1-August 31), and construction is to begin after March 1, the following guidelines will be observed:
    - Surveys will be conducted (no earlier than two weeks prior to construction) by a qualified biologist to identify if birds are nesting within the project limits.
    - If bird nests are found during pre-construction surveys:
        - The areas will be marked as environmentally sensitive and nests will be monitored by a qualified biologist for disturbance during construction; and
        - Buffer areas will be delineated around areas with active nests, and bird-disturbing construction activities within the buffer area will not occur.

- During construction activities, when evidence of migratory birds, or their occupied nests, is discovered that may be adversely affected, the Contractor shall immediately stop work within 25 feet of the occupied nests and notify the Resident Engineer (RE). Work shall not resume until the RE has consulted with the project biologist on how to proceed, and provides written notification to the Contractor that work may begin in this location.

- All disturbed areas will be revegetated and restored to pre-construction conditions. Replanting will occur with native plant material indigenous to the area.

1.5 Impacts and Effects on Birds

Direct impacts to birds themselves are unlikely, due to the mobility of birds. Impacts to active nests will not occur since vegetation removal will occur outside of the nesting season, and exclusion will prevent swallows from nesting in areas where their nests, eggs or chicks could be disturbed or harmed. The project will result in some temporary impacts from the removal of nesting vegetation, which will be replanted.

1.5.1 Swallow Nesting Sites Available During Construction

NOTE: The following is described in terms of one side (either east or west) of the bridge; swallow nesting areas occur on both sides of the bridge, and thus all the areas described below are doubled.

Refer to Figure 1. The bridge is 2,038 feet long from abutment to abutment. Of this, approximately 250 feet on each end of the bridge, starting at the abutments, show no evidence of swallow nesting in the past several years (no nest scars or stains whatsoever), probably due to the height of vegetation in relation to the bridge (ground elevation is higher at the abutments) and possibly disturbance from people under the bridge. This means that approximately 500 feet of the bridge is not normally used by swallows. Thus, about 1,538 feet on each side (east and west) of the bridge is used by swallows for nesting, and is considered "potential nesting habitat". Evidence of more heavy and recent nesting (i.e., "favored nesting habitat") spans from Pier 4 on the south bank of the Klamath River to Pier 11 on the north bank (1225 feet). Within this span, nesting is especially concentrated over the river, between piers 4 and 8; this appears to be a "prime" nesting habitat, spanning 700 feet on each side of the bridge.

Caltrans proposes to exclude swallows at a distance of 100 feet from the source of noise and vibration (i.e., 100 feet out from both sides of the hinge, for a total of 200 feet exclusion at each hinge). This would result in 600 feet excluded, leaving 938 feet (61%) of potential nesting habitat unexcluded, on each side (east and west) of the bridge. All (700 feet) of the "prime" nesting habitat would remain available, as well as 63% (385 feet) of the remaining favored nesting habitat, and 48% (125 feet) of the less suitable nesting habitat. When added together (east and west side of bridge), 1,400 feet of "prime," 770 feet of favored, and 250 feet of less suitable habitat will be available during construction; this assumes all three hinges will be

replaced during the same season. More nesting habitat will be available if construction is split into two seasons, because exclusion will be installed only near those hinges to be worked on each year.

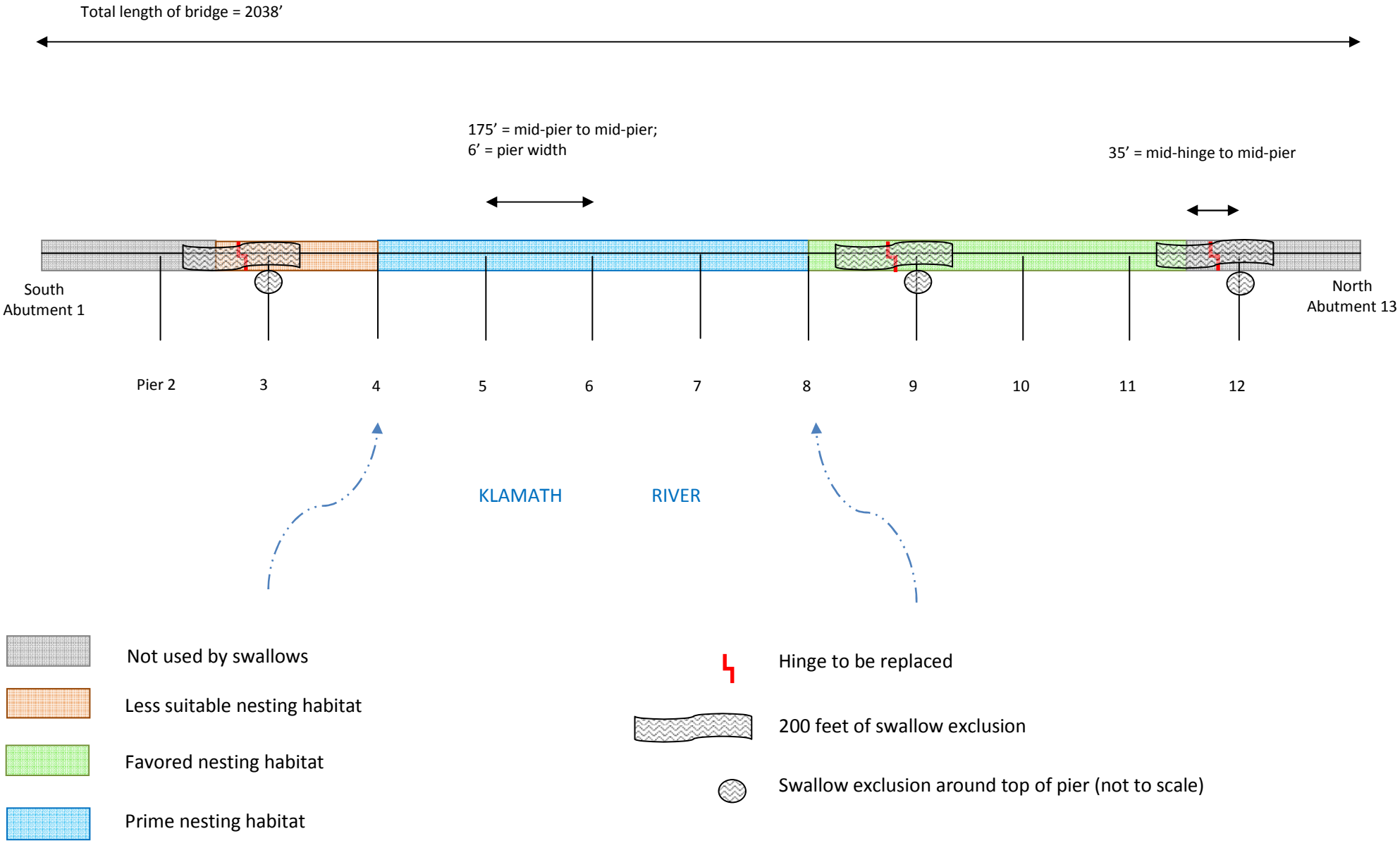

Figure 1. Swallow habitat and proposed exclusion on the Klamath River Bridge.

1.5.2 Bird Habitat Post-Construction

The quantity and condition of habitat available for cliff swallow nesting on the bridge will remain the same as prior to the hinge replacement project.

1.6 Plan Implementation

Caltrans and the Contractor will incorporate all protective measures described above, and those additional ones recommended and required by the permits and approvals by the U.S. Fish and Wildlife Service, the California Department of Fish and Game, the Yurok Tribe, the California Coastal Commission and the U.S. Army Corps of Engineers.

The determining factor of who installs the exclusion protection measures depends on when the necessary project permits (including any *prior to issuance of permit* conditions) are received. If clearances are received, allowing enough time for Caltrans maintenance staff to mobilize and install the measures, then maintenance staff will conduct the work. If clearances are not received with enough time remaining for Caltrans maintenance staff to conduct the work, then the project contractor will install the exclusion/protection measures.

1.7 Follow Up and Monitoring

Swallows will be monitored by a qualified biologist. Surveys will be conducted prior to the installation of exclusion and throughout the period when exclusion is in place, including during construction. Reports will be made via email or phone to the permitting agencies on a monthly basis. A written post-construction report will be submitted within 4 months of the end of construction. The report will include swallow use of the bridge and nesting habitat, effectiveness of exclusion devices, construction/demolition activities occurring, and any mortality or disturbance behavior observed.

Additional breeding season surveys will be conducted in the year following the hinge replacement, and a second annual report will be submitted, documenting swallow nesting use of the bridge.

Chapter 2 BATS

2.1 Known and Presumed Bat Presence and Use

At least 5 to 6 individuals, and potentially several more bats, use the bridge hinges as day roosts. Possibly up to a few hundred (though the number is unknown) bats use the interior of the box girders as day roosts, and may also use the box girders as maternity colony roosts (see the attached *Bat Surveys at the Klamath River Bridge, 2009-2011*). It is undetermined whether bats use the bridge for night roosting, but this seems likely, given the bridge's proximity to foraging habitat (riparian corridor) and the documented presence (via analysis of audio recordings) of several bat species foraging during the evening at the bridge. Night roosting normally occurs on the exterior of bridges, where bats take brief respites during foraging bouts (Caltrans, 2010a).

Bats occupy some of the bridge hinges at least during the summer (June-August) into late September. It is highly likely they use the bridge in spring (i.e., beginning in late February to March), as evidenced by large amounts of guano in the interior of the bridge (possible maternal colonies).

Some bats may use the bridge as a winter roost (Caltrans, 2010a); however, this remains to be verified by winter surveys. It is unlikely the bridge is used for hibernation, as temperatures are not cold enough in this area. The attached Bat Surveys Report provides details about survey effort and findings.

2.1.1 Bat Species Present

The project area is within the range of Yuma myotis (*Myotis yumanensis*), silver-haired bat (*Lasionycteris noctivagans*), fringed myotis (*Myotis thysanodes*) (CNDDB, August 2011) and little brown bat (*Myotis lucifugus*) (J. Szewczak, pers. comm., September 15, 2010).

Bat recording equipment and software (Szewczak, 2011) analysis were used during the first half of September 2011 to identify species present (Table 2). Five species were positively identified as present in the vicinity of the bridge:

1. Yuma myotis
2. California myotis (*Myotis californicus*)
3. little brown myotis
4. hoary bat (*Lasiurus cinereus*)
5. silver-haired bat

Table 2. Special Status of Bat Species found in the vicinity of the Klamath Bridge. The Department of Fish and Game considers the ranked taxa on this list to be those of greatest conservation need. Two species had no special status ranking. (Source: *CDFG Biogeographic Data Branch California Natural Diversity Database - Special Animals, January 2011*).

Scientific name	Common Name	Rank		ESA	CESA	Other Status
		Global	Subnational			
Myotis yumanensis	Yuma myotis	G5 S4?	S4?	None	None	BLM:S IUCN:LC WBWG:LM
Myotis californicus	California myotis	N/A	N/A	N/A	N/A	N/A
Myotis lucifugus	Little brown myotis *(San Bernardino Mts population)*	G5	S2S3	None	None	IUCN:LC WBWG:M
Lasiurus cinereus	Hoary bat	G5	S4?	None	None	IUCN:LC WBWG:M
Lasionycteris noctivagans	Silver haired bat	G5	S3S4	None	None	IUCN:LC WBWG:M
Antrozous pallidus	Pallid bat	G5	S3	None	None	BLM:S DFG:SSC IUCN:LC USFS:S WBWG:H
Eptesicus fuscus	Big brown bat	N/A	N/A	N/A	N/A	N/A

Rank: Global - G5 - Secure Global Conservation Status

Rank: Subnational - S2S3 - Imperiled/Vulnerable; S3 - Vulnerable;

S3S4 - Vulnerable/Apparently Secure; S4? - Apparently Secure (Variant Rank)

BLM: S - Bureau of Land Management sensitive species

DFG: SSC: California Species of Special Concern.

IUCN - The World Conservation Union; LC = Least Concern

USFS: USDA Forest Service sensitive species

WBWG: The Western Bat Working Group - H = High, M = Medium, LM = Low-Medium – priority

A sixth species, pallid bat (*Antrozous pallidus*), was identified as most likely being present. A seventh species, big brown bat (*Eptesicus fuscus*), was identified as possibly being present. See the attached report, *Bat Surveys at the Klamath River Bridge, 2009-2011*, for details.

Some of these species have special conservation status, as listed in Table 2.

2.2 Roosting Habits and Habitats of Bat Species Present

It is not known definitively all potential species of, and the full extent of how and when, bats use the Klamath River Bridge. Thus, this exclusion plan relies on the best available science to predict the likely type of bat use of the bridge – i.e., as maternal, day, night or migratory staging roosts, or over-winter hibernacula. This information was incorporated in planning the exclusion techniques that will be used. Natural history parameters and ecological requirements vary considerably among species, making it important that individual species occurring at a project site be correctly identified, and that species assemblage be adequately characterized (Johnston et al., 2004). Below is species-specific information relevant to potential use of the Klamath Bridge, based on species accounts (Bat Conservation International, 2011; Western Bat Working Group, 2005).

Yuma myotis – Frequently roosts in bridges. Females give birth from mid-spring to mid-summer. There are gaps in knowledge about winter range, and winter roost requirements, and it is unknown if they hibernate or overwinter in northwestern California. Bachelor males also sometimes roost in abandoned cliff swallow nests.

Little brown myotis - Summer maternity colony sites include human-occupied structures, sometimes bridges. Fidelity to physically stable day and night roost sites is strong, and individuals return for many years. Hibernation sites (typically caves and abandoned mines) and seasonality are poorly known in the west. Lack of knowledge of hibernation sites (and the degree of population aggregation at these sites) is a key point of vulnerability for this species. This species is especially associated with humans, often forming nursery colonies containing hundreds, sometimes thousands of individuals in buildings, attics, and other man-made structures.

Pallid bat – Day and night roosts frequently include bridges. Pallid bats roost in rock crevices, buildings, and bridges in *arid* regions. Although year-to-year and night-to-night roost reuse is common, they may switch day roosts on a daily (1-13 d) and seasonal basis. Parturition occurs from late April to July, and weaning in August; populations at higher latitudes and in cooler climates give birth later in the season. Winter habits are poorly known, but this species

apparently does not migrate long distances between summer and winter sites. In coastal California, males and females overwinter in a primary roost but occasionally use alternate roosts throughout the winter. Overwintering roosts have relatively cool, stable temperatures and are located in protected structures beneath the forest canopy or on the ground, out of direct sunlight. Few records of seasonal movements, locations of hibernacula and winter roosts, and mating behavior exist.

Big brown bat - This species is well known for its propensity to roost in anthropomorphic structures, including bridges. Bridges are commonly used as night roosts by males and pre-parturition and post-lactating females. Females give birth in early summer, after a gestation of about 60 days. The young are volant in 3-4 weeks. This species hibernates for most of the winter in the northern portion of its range. It appears to be a relatively sedentary species and is not known to migrate large distances. Information is generally lacking on seasonal movements and hibernation sites.

California myotis – Is infrequently reported as roosting in bridges. It forms small maternity colonies in cliff crevices, buildings, and bridges. Like many species, California myotis switch roosts on a regular basis, sometimes within a few feet, sometimes up to a mile apart.

Hoary bat – Is not reported as roosting in bridges; large groups migrate in autumn. Humans rarely get the chance to see these magnificent bats; they are not attracted to houses or other human structures, and they stay well hidden in foliage throughout the day. They typically roost 10-15 feet up in trees along forest borders.

Silver-haired bat - Maternity roosts appear to be almost exclusively in trees. Some records exist for roosts in other structures, but these appear to be largely anomalies. Radio-tracking has shown that these bats travel considerable distances from roost sites to foraging areas. Seasonal records suggest considerable north-south migration, with animals moving to warmer, more southern climates in the winter. The few overwintering individuals that have been found in Oregon and Washington were juveniles from the previous summer. They form maternity colonies almost exclusively in tree cavities or small hollows. Even though they are highly dependent upon old growth forest areas for roosts, silver-haired bats feed predominantly in disturbed areas, sometimes at tree-top level, but often in small clearings and along roadways or water courses.

It is highly unlikely that any bat species hibernate on the Klamath River Bridge, due to the temperate climate of the region; it is not cold enough to trigger hibernation. It is possible that bats use the bridge for over-winter roosting, during which they remain active and forage.

However, more surveys are needed to corroborate this. Table 3 summarizes the potential bat use of the bridge, based on local surveys and best available science.

Table 3. Potential Bat Roost Use and Probable Season of Use of the Klamath River Bridge, DN-101

	Type of Roost					
Bat Species	Day	Night	Maternity	Migratory	Winter	Hibernation
Yuma myotis	Mar-Oct	Mar-Oct	mid-Mar - Aug	?	?	?
California myotis	Infrequent	Infrequent	mid-Mar - Aug	Infrequent	?	unlikely
Little brown myotis	Mar-Oct	Mar-Oct	mid-Mar - Aug	?	?	unlikely
Hoary bat	N	N	N	N	N	unlikely
Silver haired bat	N	N	N	N	N	unlikely
Pallid bat	Mar-Oct	Mar-Oct	May - early Sep	?	Y	unlikely
Big brown bat	Mar-Oct	Mar-Oct	Apr - Aug	?	?	unlikely

2.2.1 Additional Surveys

Surveys will continue to more precisely determine bat use of the bridge and the time of year (if any) bats are not present in the bridge, when exclusion devices would best be installed. Pre-exclusion surveys will be conducted.

2.2.2 Assumptions

Based on what has been observed at the bridge, and what is known of typical bat behavior and roosting requirements, the most conservative approach to protect bats includes assuming:

1. Bats are present in all hinges and box girders, at least for part of each year. Furthermore, since different species may use a site at different times of the year and even within one season, and bat roosts can change location from year to year (Caltrans, 2010a), it is prudent to make such an assumption.

2. All three hinges to be replaced may be used as day roosting areas for a small number (< 100) of bats, at any time of year. The hinges likely do not serve as maternal roosts.

3. Bridges (especially concrete ones, which hold heat better) often serve as significant night roosts. Those most commonly used for night roosts are open cavity sites. Though the Klamath River Bridge has no open cavity sites, it is made of concrete. Thus, bats may use some exterior bridge surfaces for temporary night roosting, from which they would be free to escape if disturbed by the hinge repair work.

4. Box girders abutting the hinges are occupied by bats during spring (as soon as early March) through summer, and are gone by early October. Box girders may be used as

maternal roosts, and extra precautions are necessary in installing exclusion devices here.

5. Bats may roost over-winter on the bridge, but more surveys are necessary to document this. Non-hibernating bats may use areas, such as the Klamath River Bridge, that have prolonged periods of non-freezing temperatures during winter (Caltrans, 2010a).

6. There may be a low number of bats present that are undetected during surveys.

2.3 Potential for Disturbance to Bats

The same background information and analyses for swallows were used in estimating the effects of construction vibration and noise on bats and at what distance to exclude them from the noise source. Please refer to pp 5-6 under *BIRDS - Effects of Construction Noise and Vibration on Swallows and Bats Nesting or Roosting on the Bridge* and *Estimating Distance at which to Exclude Swallows and Bats*. One additional reference on bats documented that bats roosting in bridges are subjected to traffic noise, and are very tolerant of noise and vibration from above, though not from below (Caltrans, 2010a).

Caltrans determined that an appropriate method to exclude bats from work is to prevent them from entering the box girders adjacent to the hinges to be replaced. This will result in keeping bats 140 feet from the point source of noise and vibration in the longer box girder adjacent to the hinge. In the shorter box girder, bats will be kept a minimum distance of 35 feet from the point source, but will be free to move an additional 175 feet away (Figure 2).

This is based on the goal of keeping bats a safe distance from disturbance while leaving adequate roosting habitat available. Unlike nesting swallows, bats with young are not attached to a particular spot, though they cannot move long distances with the young. Thus, if bats are rearing pups in the box girder on the other side of the pier from the hinge, they will be able to move their young away (by crawling or flying, depending on the stage of their young) from the source of disturbance (up to a distance of 175 feet, the length of the girder).

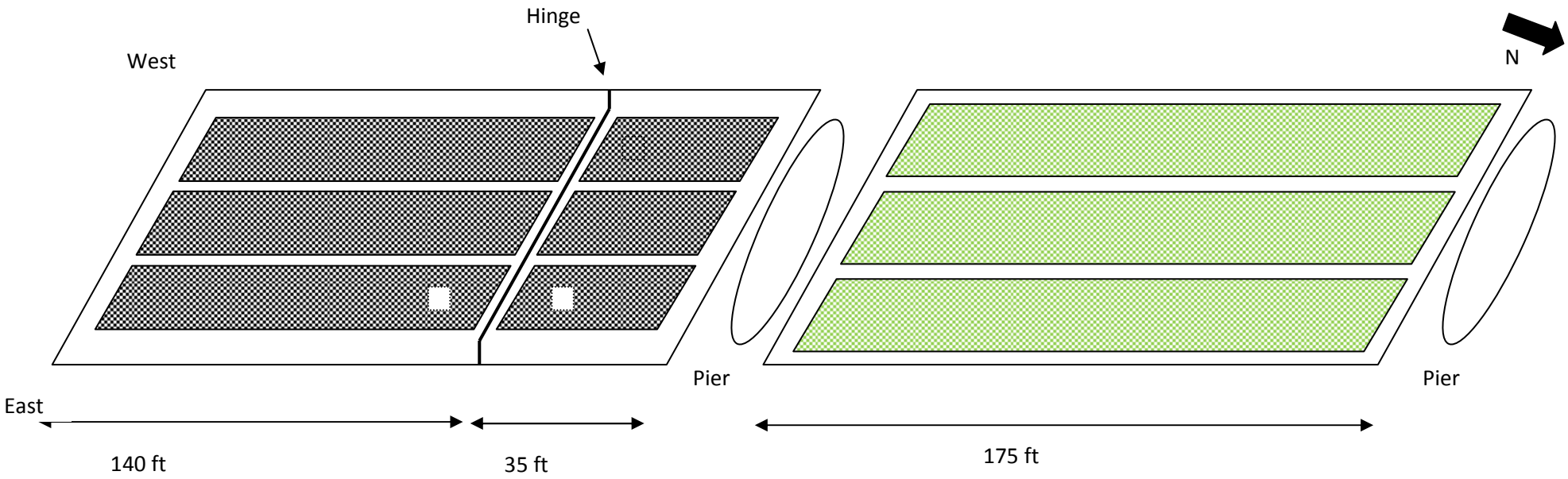

Figure 2. Distance bat exclusion will keep bats away from the point source of high level noise and vibration work at each hinge on the Klamath River Bridge.

2.4 Installation of Bat Exclusion

It would be optimal to perform the hinge repair when bats are not present. However, it will not be possible to perform the work entirely outside of the season when bats are anticipated to occupy the bridge, as the work is scheduled to occur from mid-May through October during the low flow season of the Klamath River, due to water quality concerns. Thus, exclusion devices will be installed prior to the arrival of bats, if at all possible. Surveys will be conducted no more than 15 days prior to and throughout the installation in order to fully assess bat presence, and installation methods will be adjusted accordingly to ensure bats are not trapped or injured. A qualified and experienced biologist will conduct the bat surveys. This biologist must possess a degree in biological or natural science from an accredited college or university and have a minimum of 1-year experience in performing bat surveys, and/or certified bat training.

2.4.1 Timing of Bat Exclusion

Exclusion devices will be installed on the bridge hinges and box girders between November 15 and February 28, when bats are not expected to be present, and prior to the season of construction. It is not recommended to seal a structure at all during April-August as this will trap flightless young inside (Bat Conservation and Management, BCM, 2011).

If it proves infeasible to exclude when no bats are present (e.g., bats are found to use the bridge year-round or for extensive periods), the following additional precautions will be taken:

1) At the hinges and any box girders used solely as non-maternal roosts, install exclusion devices after bat emergence at dusk, with devices that will allow bats still inside to exit but not re-enter the bridge. Installation of bat exclusion will begin approximately one hour after sunset, to allow for all bats to exit the bridge, and be completed within 3 hours after sunset, since bats may return in the early evening to roost after foraging bouts. Most bats start to leave a building about 15 minutes after sunset; however, some species of bats leave their roosts later than others (BCM, 2011).

2) At box girders and any hinges that serve as maternity roosts no exclusion will be installed during the pup season, estimated to occur between late April and late August. It is imperative that exclusion be installed prior to or after these dates. Pups are non-volant, unable to fly and leave the roost, during this period.

3) It is planned for all three hinges to be repaired within the same year. However, if this plan changes, only those hinges that will be worked on within the year will have exclusion installed, so that available bat roosting sites are not unnecessarily restricted - e.g. Hinge 2 will be excluded one year and hinges 8 and 11 the other year.

4) Installation of exclusions should be carefully monitored or avoided during periods when night temperatures fall below 50° F (10° C), because bats may remain inactive and not leave their roost sites (BCI 2011). If bats are hibernating (which is unlikely) in the bridge during the winter, exclusions should be postponed until spring when bats emerge to feed.

5) Inspections will be conducted prior to the installation of exclusionary measures and thereafter on a weekly basis, at a minimum, to ensure bats are not present.

2.4.2 Types, Methods, and Scope of Work for Bat Exclusion

Excluding bats from a roost is a process that allows them to exit unharmed, but not re-enter (BCI 1999). Surveys for bat presence will be conducted prior to exclusion installation. All obvious accesses will be sealed except one or two of the principal openings. One-way exclusionary devices will be installed on the openings into the box girders, to allow any bats remaining inside the bridge to escape from, but not return to, the bridge interior.

Exclusion devices will be installed on the bridge hinges and box girders between November 15 and February 28, when bats are not expected to be present, and prior to the season of construction. It may be possible to do exclusion in March and early April, if necessary, depending upon whether bats are present or not. It is possible bats will be present year-round. It is not recommended to seal a structure at all during mid-April-August, as this could trap flightless young inside.

2.4.3 Restrictions

-- Exclusion will be done with devices that will prevent roosting without morbidity or mortality to bats. Exclusion will be designed so it does not trap or entangle bats. Bird netting (Johnston et al., 2004) or other materials that could injure or kill bats will not be used as exclusion devices.

--Bat exclusion will be overseen by a qualified biologist.

-- Installation of exclusions should be carefully monitored or avoided during periods when night temperatures fall below 50° F (10° C), because bats may remain inactive and not leave their

roost sites. If bats are hibernating (which is unlikely) in the bridge during the winter, exclusions should be postponed until spring when bats emerge to feed.

-- According to Bat Conservation International (1999), caulking, flashing, screening or heavy-duty mesh can be used to bat-proof most openings on the outside. Expanding foam, caulking or similar products that take time to cure should **not** be used to seal cracks *where bats are active and could come into contact with it* (i.e., inside the box girders) because they can become entangled in that material as it dries. Such material can be used (i.e. on the outside of box girders and at the hinges) where it can be protected from contact with bats while it dries. These materials should be quick drying, preferably water-based, and produce no toxic off-gasses.

2.4.4 Order of Work and Methods

1) **Surveys**: at least 2 (more may be necessary) will be conducted prior to exclusion, by a qualified and experienced bat specialist/biologist.

    a) Bat surveys will be conducted prior to the exclusion (no more than 15 days prior to and throughout the installation in order to fully assess bat presence, and installation methods will be adjusted accordingly to ensure bats are not trapped or injured).

2) **Exclusion**: Once it is confirmed that no bats are present in the roost areas (inside box girders, inside the hinge joints, or any other possible roosting areas on which work is to be performed), exclusion should begin. *If bats are present, extra precautions and more time will need to be taken. If a maternity colony is present, exclusion may not take place until pups are volant and have left the roost.*

    a) **Box Girders**; (6 per hinge); Primary exit points are identified and marked on **all the box girders adjacent to the hinges to be worked on that year.** These include any type of openings such as scupper holes, drainage holes and inspection openings. All other escape routes greater than 0.25 inches (0.6 centimeter) are sealed. The preferred method is to use 1/8" wire mesh to bend and shape to fit the opening to be excluded. Other methods could include the use of caulking or flashing.

    The large access openings will have one-way exclusionary devices or valves installed. The preferred method is to install PVC pipe with or without an attached plastic sleeve (see attached BCI publication on Bat Exclusion for the details of installation). The pipe should be 10" long with a 2" diameter, and installed so that the tube or

pipe extends no more than ¼" into the opening. The access hole would first be covered with plywood board (or a sandwich of plywood boards) and bolted, or otherwise attached to the soffit, with a hole cut out to accommodate the PVC pipe/tube. The plywood will be attached in such a way (i.e. sealant applied to the edges) that no crevices or cracks remain for bats to access.

b) **Hinges** (3 total hinges, but only one or two may be excluded per year): Access to unused portions of these long crevices can be minimized by filling them with suitable material, such as wood, backer rod, steel wool, tubular foam pipe installation, heavy-duty mesh, expanding foam or caulk. Care should be taken to avoid sealing bats into the roost. If bats are determined to be present, the installation of bat exclusion will begin approximately one hour after sunset, to allow for all bats to exit the bridge, and be completed within 3 hours after sunset, since bats may return in the early evening to roost after foraging bouts. No exclusion will be performed at the hinges until all bats have evacuated the hinge. The preferred method will be to use a quick drying, water-based caulk or expanding foam, but caution should be used and the foam/caulk protected from contact with bats while it dries (i.e. with plywood or other covering). Bats displaced during exclusions may try to return to the roost for a short time following the procedure (BCI, 1999). Additionally, a type of sealant will be used that produces no toxic off-gasses.

   It is likely not possible to install one-way exclusionary devices at the hinges, due to their linear and shallow, crevice-like configuration.

3) **Other Work**: Remove existing coverings (metal squares) from the soffit inspection openings on those box girders adjacent to hinges not being replaced, to compensate for loss of habitat during hinge repair.

4) **Follow up Surveys and Inspections:** Inspections will be conducted on a weekly basis, at a minimum, to ensure bats are not present in the excluded parts of the structure, or entrapped in the exclusion devices.

5) **Exclusion Removal:** All exclusionary measures must be removed when bat-disturbing or entrapping activities are completed at each location. The exclusion should not be left up over-winter and allowed to deteriorate in the weather, and must be removed before bats return in the spring.

2.5 Additional Avoidance and Minimization Measures to Protect Bats

1. When evidence of bats within the work area or excluded areas is discovered, or if it is determined that bats may be adversely affected by construction activities, or when bats are injured or killed as a result of construction activities, the Contractor shall immediately stop work within 25 feet of the occupied roosts, injured or dead bats, and notify the Resident Engineer. Work will not resume until the Resident Engineer has consulted with the bat biologist and provides written notification that work may begin in this location.

If bats are found to roost in sections of the bridge *where no work is to be performed*, measures will be employed to minimize disturbance to them. These include;

2. Designating the areas under the roost within visual sight of the bats as an Environmentally Sensitive Area.

3. Minimizing clearing and grubbing, when possible.

4. Combustion equipment, such as generators, pumps, and vehicles would not be parked or operated under or adjacent to the structures unless necessary to perform the work.

5. If night work is needed, lighting should only focus on the portion of the bridge actively under construction. Presence of personnel directly under bat colonies would be minimized, especially during bat exit and entrance times of dusk and dawn.

6. When evidence of bats is discovered, or if it is determined that bats may be adversely affected by construction activities, or when bats are injured or killed as a result of construction activities, the Contractor shall immediately stop work within 25 feet of the occupied roosts, injured or dead bats and notify the Resident Engineer. Work shall not resume until the Resident Engineer has consulted with the bat biologist and provides written notification that work may begin in this location.

2.6 Impacts and Effects on Bats

2.6.1 Roosting Sites Available During Construction

Since only one to three hinges will be worked on at a time, the other bridge hinges (4 total on the bridge) and bridge structures will be available for roosting during the work. The existing

large soffit openings (used for human access) to those box girders not adjacent to hinges being repaired will be uncovered at the time exclusion is installed elsewhere. This will provide easily accessible, alternate roosting habitat and help compensate for loss of habitat during hinge repair. There is evidence (based on the presence of guano) that some of these box girders have been used by bats, but not to the same extent as the one box girder where the soffit opening has been uncovered for 2-3 years. It appears that this box girder was used much more heavily by bats (much thicker layer of guano), and it may likely be because the very large access opening was uncovered. The other box girders have metal plates bolted to cover the access holes, and bats are only able to access the box girders through much smaller openings.

Additionally, there are several potential alternate roosting sites and existing habitat (i.e., foliage, large standing snags, and rock crevices) in the vicinity of the bridge. The installation of smaller, temporary bat houses (typically attached to structures or free-standing), would most likely not be effective, as they do not maintain a steady temperature conducive to bat roosting, and often bats do not use them (Caltrans, 2002). Given the amount of bridge available for roosting, it is probable bats would choose the bridge over new bat housing.

2.6.2 Bat Habitat Post-Construction

The repaired bridge will provide as much, and likely more, roosting area and potentially better habitat value than it currently provides for bats. To help accomplish this, slight modifications will be made as part of the work.

Hinges to be replaced will be approximately the same dimensions and will provide similar roosting structure as the existing hinges. At each finished hinge, the newly installed joint foam (expanded polystyrene) will be trimmed at the exterior edge to leave a 6-inch depth for bats to access for roosting. Previously, the foam was installed flush with the exterior of the hinge joint, and only provided bat roosting habitat if it weathered away. The plans will identify the removal of foam within the hinges (to a 6 inch depth from edge of bridge, from soffit to deck--on both the east and west side) at all three hinges.

Opening to the box girders will be left as they were (or more accessible to bats than) before construction. Specifically, the one box girder (at Hinge 8) where the large soffit opening has remained uncovered for 2-3 years will remain so, since bats are accustomed to frequenting this girder. Within this box girder, there is evidence of high bat use, which is probably due to ease-of-access. As an additional habitat-enhancing measure, another box girder (at Hinge 2) with evidence of moderate bat use (indicating favorable habitat), will have its soffit opening uncovered to allow easier access in the future for bats. The plans will specify at Hinge 2 to leave the cover off of the inspection access point, long span (south side of hinge) at the easternmost

box/cell, and at Hinge 8 to leave the cover off of the inspection access point, short span (north side of hinge) at the easternmost box/cell. In addition, the new hinge seats will be 2 feet, as compared to the existing 6-inch hinge seats, resulting in 1.5 feet of additional bat habitat.

2.7 Plan Implementation

Caltrans and the Contractor will incorporate all protective measures described above, and those additional ones recommended and required by the permits and approvals by the U.S. Fish and Wildlife Service, the California Department of Fish and Game, the Yurok Tribe, the California Coastal Commission and the U.S. Army Corps of Engineers.

The determining factor of who installs the exclusion protection measures depends on when the necessary project permits (including any *prior to issuance of permit* conditions) are received. If clearances are received, allowing enough time for Caltrans maintenance staff to mobilize and install the measures, then maintenance staff will conduct the work. If clearances are not received with enough time remaining for Caltrans maintenance staff to conduct the work, then the project contractor will install the exclusion/protection measures.

2.8 Follow Up and Monitoring

Bats will be monitored by a qualified biologist with training and experience in bat surveys, identification, biology, behavior, and roosting habitat requirements. Surveys will be conducted prior to the installation of exclusion and throughout the period when exclusion is in place, including during construction. Reports will be made via email or phone to the permitting agencies on a monthly basis. A written post-construction report will be submitted within 4 months of the end of construction. The report will include seasonal and diurnal bat use of the bridge and roosting habitat, effectiveness of exclusion devices, construction/demolition activities occurring, and any mortality or disturbance behavior observed.

Additional seasonal surveys will be conducted for bats in the year following the hinge replacement, and a second annual report will be submitted, documenting bat use and location in the bridge.

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Appendix 1.

Bird species observed at Hinge Work Areas 8 and 11, Klamath River Bridge Project during field visits and surveys, 2009 and 2010. Effort to document all species was made in June, July and August. Otherwise, these are incidental observations.

	2009					2010			
Species Name	March	June	July	August	October	March	June	July	August
Common Merganser - *Mergus merganser*									X
California Quail - *Callipepla californica*		X		X		X	X	X	X
Turkey Vulture - *Cathartes aura*		X		X			X	X	X
Osprey - *Pandion haliaetus*	X	X		X		X	X	X	X
White-tailed Kite - *Elanus leucurus*			X						
Bald Eagle - *Haliaeetus leucocephalus*	X	X							
Red-shouldered Hawk - *Buteo lineatus*		X	X				X		
Peregrine Falcon - *Falco peregrinus*					X				
Semipalmated Plover - *Charadrius semipalmatus*									X
Spotted Sandpiper - *Actitis macularius*								X	X
Greater Yellowlegs - *Tringa melanoleuca*				X					
Western Gull - *Larus occidentalis*				X			X	X	X
Band-tailed Pigeon - *Patagioenas fasciata*		X						X	X
Mourning Dove - *Zenaida macroura*		X						X	
Vaux's Swift - *Chaetura vauxi*							X	X	X
Anna's Hummingbird - *Calypte anna*	X	X		X					
Rufous Hummingbird - *Selasphorus rufus*				X		X			
Allen's Hummingbird - *Selasphorus sasin*		X					X		
Rufous/Allen's Hummingbird - *Selasphorus rufus/sasin*	X	X						X	X
Belted Kingfisher - *Megaceryle alcyon*				X			X	X	X
Downy Woodpecker - *Picoides pubescens*							X	X	
Northern Flicker - *Colaptes auratus*							X		
Western Wood-Pewee - *Contopus sordidulus*		X					X	X	X
Pacific-slope Flycatcher - *Empidonax difficilis*		X		X			X	X	
Black Phoebe - *Sayornis nigricans*								X	
Hutton's Vireo - *Vireo huttoni*							X	X	X
Warbling Vireo - *Vireo gilvus*			X				X	X	

Appendix 1. (continued)

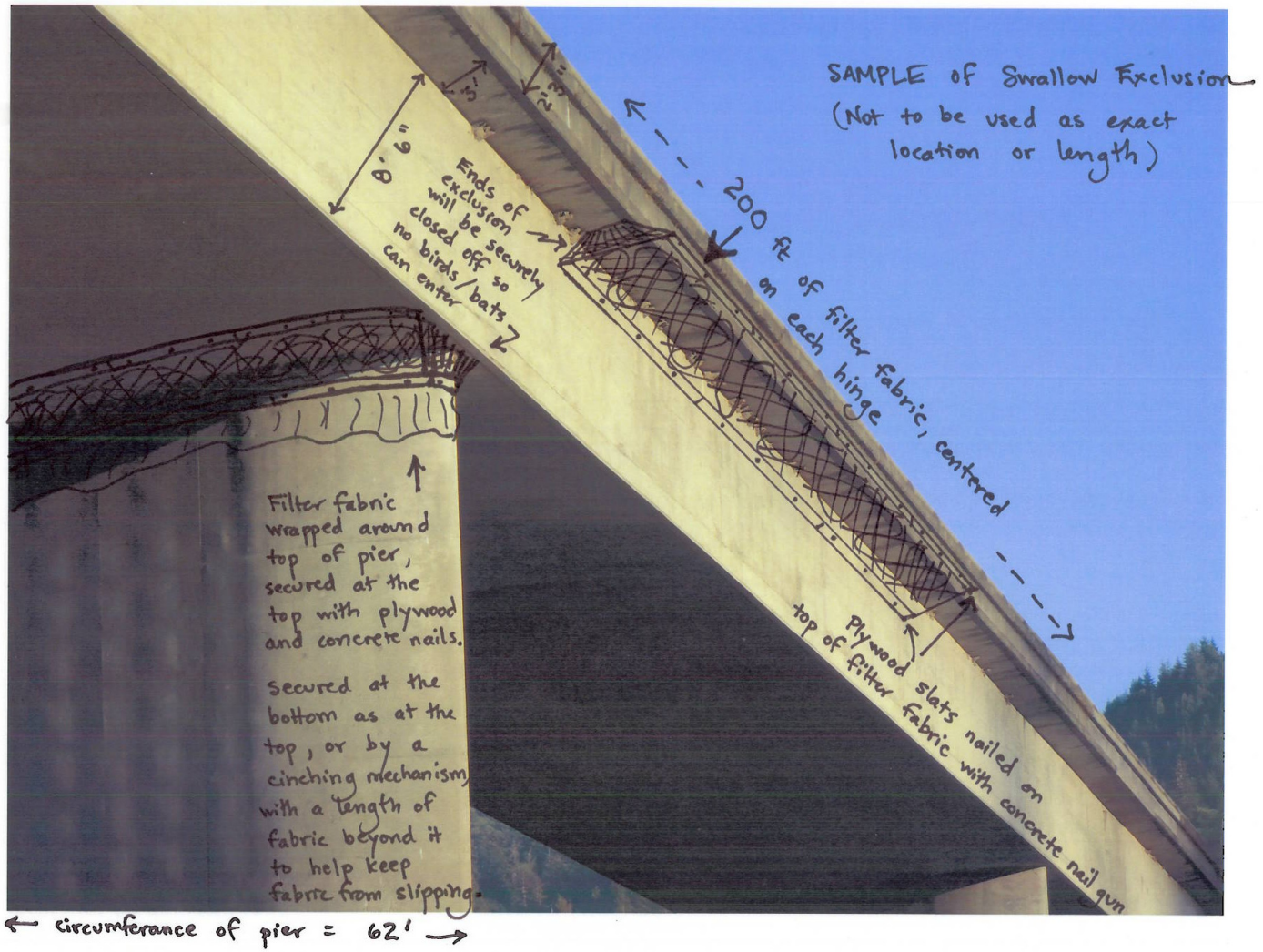
Species Name	2009 March	2009 June	2009 July	2009 August	2009 October	2010 March	2010 June	2010 July	2010 August
Steller's Jay - *Cyanocitta stelleri*		X					X	X	X
American Crow - *Corvus brachyrhynchos*		X					X	X	X
Common Raven - *Corvus corax*		X		X			X	X	X
Northern Rough-winged Swallow - *Stelgidopteryx serripennis*		X					X		
Tree Swallow - *Tachycineta bicolor*		X					X		
Violet-green Swallow - *Tachycineta thalassina*	X	X				X		X	X
Barn Swallow - *Hirundo rustica*		X					X	X	X
Cliff Swallow - *Petrochelidon pyrrhonota*		X		X		X	X	X	X
Black-capped Chickadee - *Poecile atricapillus*	X	X					X	X	
Chestnut-backed Chickadee - *Poecile rufescens*		X		X		X	X	X	X
Bushtit - *Psaltriparus minimus*								X	X
Bewick's Wren - *Thryomanes bewickii*		X				X	X	X	
House Wren - *Troglodytes aedon*		X							
Winter Wren - *Troglodytes troglodytes*		X		X		X	X		X
Swainson's Thrush - *Catharus ustulatus*		X					X		X
American Robin - *Turdus migratorius*	X	X		X			X	X	X
Varied Thrush - *Ixoreus naevius*								X	
Wrentit - *Chamaea fasciata*		X		X		X	X	X	X
European Starling - *Sturnus vulgaris*		X					X	X	
Cedar Waxwing - *Bombycilla cedrorum*		X		X			X	X	X
Orange-crowned Warbler - *Vermivora celata*		X				X	X	X	
Yellow Warbler - *Dendroica petechia*		X		X			X	X	
Common Yellowthroat - *Geothlypis trichas*							X	X	
Wilson's Warbler - *Cardellina pusilla*		X		X		X	X	X	X
Yellow-breasted Chat - *Icteria virens*		X					X	X	

Appendix 1. (continued)

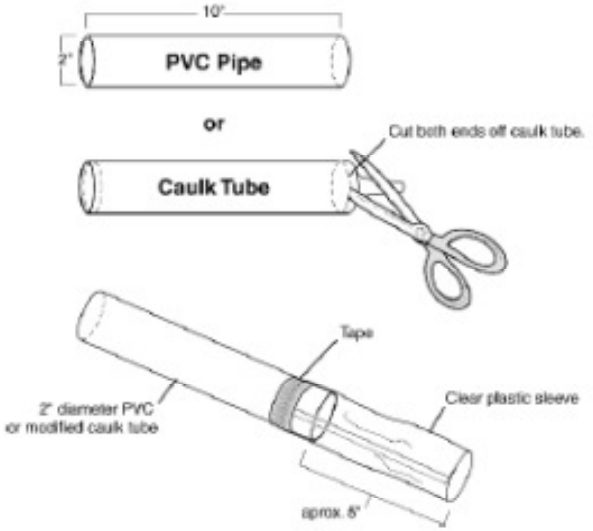
Species Name	2009 March	June	July	August	October	2010 March	June	July	August
Spotted Towhee - *Pipilo maculatus*				X					X
Song Sparrow - *Melospiza melodia*	X	X		X		X	X	X	X
White-crowned Sparrow - *Zonotrichia leucophrys*	X	X					X	X	X
Western Tanager - *Piranga ludoviciana*		X		X					
Black-headed Grosbeak - *Pheucticus melanocephalus*		X		X			X	X	
Brewer's Blackbird - *Euphagus cyanocephalus*		X					X	X	X
Brown-headed Cowbird - *Molothrus ater*		X					X	X	
Purple Finch - *Carpodacus purpureus*								X	
Lesser Goldfinch - *Spinus psaltria*								X	
American Goldfinch - *Spinus tristis*		X		X			X	X	X

Appendix 2.

Method of Swallow Exclusion at the Klamath River Bridge.



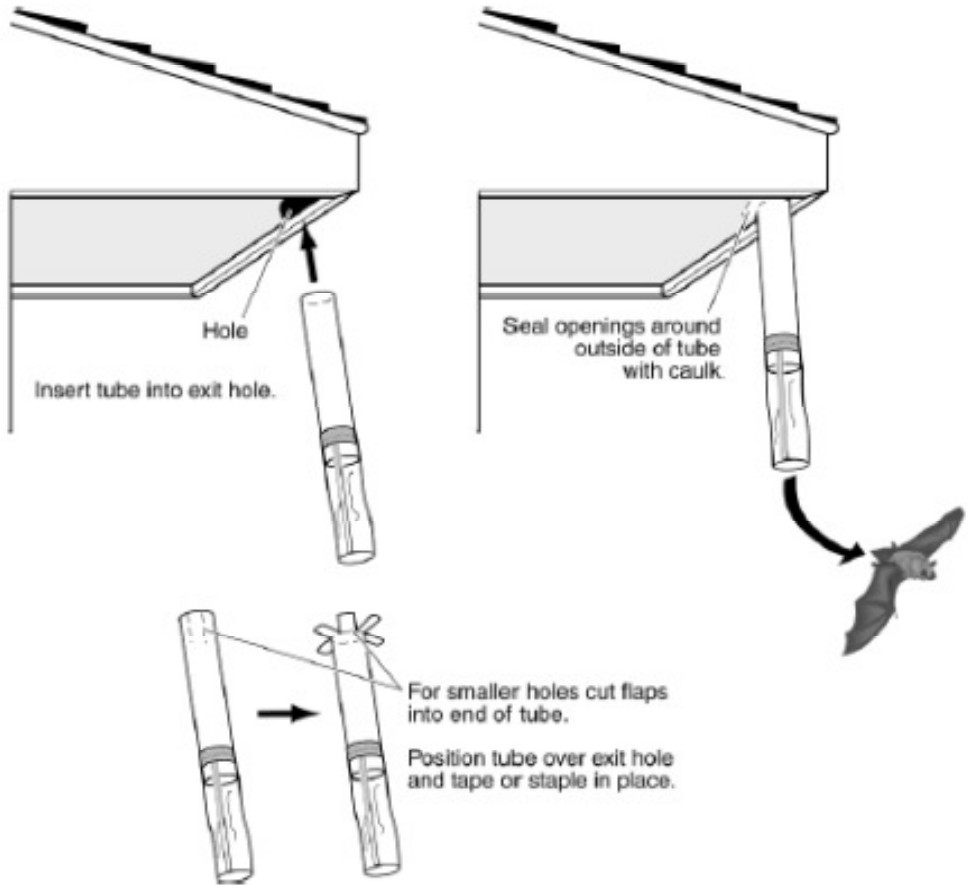
Excluding bats with tubes



In most cases, tubes make the best bat-exclusion devices. These include openings on buildings with rough exterior walls, such as brick or stone houses and log cabins. Tubes also work best for holes at corners where walls meet and on horizontal surfaces such as soffits.

Exclusion tubes should have a diameter of two inches (five centimeters) and be about 10 inches (25.4 centimeters) in length. Exclusion devices can be purchased commercially or made from PVC pipe or flexible plastic tubing. Bats are unable to cling to the smooth surface of these tubes, so the tube should project no more than one-quarter inch (six millimeters) into the opening. This will ensure exiting bats can easily enter the tube. Laura Finn of Fly By Night Inc., says empty caulking tubes also work well after caps at both ends have been cut away. Caulking tubes must be thoroughly cleaned before they can be used for exclusions because dried caulk forms a rough surface that could allow bats to reenter. These flexible, plastic tubes let you squeeze one end so it fits into a crevice. Or you can cut one end into flaps that fit over an opening and can be caulked, stapled, nailed or screwed into place (*see diagram*).

Once the tube has been secured over the hole, a piece of lightweight, clear plastic can be taped around the tube's outside end (*see diagram*) to further reduce the likelihood of bats reentering, though this is usually not necessary.



Plastic sleeves collapse on themselves, preventing bats from reentering once they have crawled out through the tube. After the tube has been secured into or over an opening used by bats, any spaces between the outer rim of the tube and the building must be sealed shut. Also be sure to seal any other openings in the building that bats could use. Leave the tube in place for a minimum of five to seven days to ensure all bats have left. After the bats have been excluded, the tube should be removed and the opening permanently sealed.

BCI Bat Exclusion Attachment

UNITED STATES ROUTE 101 KLAMATH RIVER BRIDGE HINGE REPAIR PROJECT

HYDROACOUSTIC MONITORING PLAN

PREPARED FOR:

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October 1, 2012

Introduction

The California Department of Transportation (Caltrans) is planning to repair the United States Route 101 bridge over the Klamath River in northern California. Work will include demolishing part of the bridge deck where three hinges will be replaced. Dynamic hoe rams will be used to demolish portions of the bridge deck that will be removed and replaced. Caltrans has developed a construction specification that limits hoe-ram energy to 1,200 ft-lbs. Hoe-ram energy needs to be limited to avoid damage to nearby areas of the bridge structure that are not being demolished. Figure 1 (attached) shows the three hinges that will be repaired. These hinges are identified as Hinge 2, Hinge 8, and Hinge 11.

The hydroacoustic impact assessment prepared for this project (ICF International 2012) indicates that underwater noise levels generated by hoe ram demolition activities will not result in underwater noise levels that exceed fish injury threshold established by NOAA Fisheries. However, the Coastal Commission is requiring that hydroacoustic monitoring be conducted during demolition of the first half width removal of Hinge 8 to ensure that injury thresholds are not exceeded. This hydroacoustic monitoring plan has been prepared to provide details on how underwater noise monitoring will be conducted.

Background on Underwater Sound

Underwater Noise Metrics

Airborne sound is measured using the logarithmic decibel scale. Underwater sound is also measured with a decibel scale. However, because decibels used for airborne sound measurement use a reference level that is different from the reference level used for water, airborne sound levels and underwater sound levels cannot be directly compared. Table 1 provides a range of typical underwater sound levels.

Table 1
Typical Sound Levels in Underwater Environments

Sound Source	Sound Pressure Level (dB RMS)
High explosive at 100 meters	220
Airgun array at 100 meters	200
Unattenuated pile strike at 200–300 meters	180
Large ship at 100 meters	160
Fish trawler passby (low speed) at 20 meters	140
Background with boat traffic (ranging from quiet estuary to water body with boat traffic)	60–100

Pile driving in water or on land near water can produce underwater sound that can affect fish. The Caltrans Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish (2009) provides a thorough discussion of this issue including detailed definitions of terminology and measurement metrics. The following is a brief discussion of common underwater noise metrics.

Peak sound pressure level (L_{peak}), root-mean-squared (RMS) level, sound exposure level (SEL), and the related cumulative sound exposure level ($SEL_{cumulative}$) are commonly used in evaluating hydroacoustic impacts on fish and are expressed in terms of decibels relative to 1 micro-pascal. The peak sound pressure is the instantaneous maximum or minimum overpressure generated by impulse event such as a pile strike. The RMS level is the square root of the sum of the squared pressures multiplied by the time increment and divided by the impulse duration. SEL is a measure of the total sound energy associated with a single event. $SEL_{cumulative}$ is a measure of the total or cumulative sound energy associated with multiple events such as multiple pile strikes. Refer to the Caltrans Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish (Caltrans 2009) for detailed definitions of these terms.

The concept of cumulative SEL is used in impact pile driving underwater noise analysis. In a situation where the single strike SEL is relatively consistent and the number of strikes can be counted, the cumulative SEL can be estimated by taking 10 times the logarithm of the number of strikes and adding that value to the single strike SEL. For example, if it takes 1,000 strikes to install a pile and the single strike SEL is 175 dB, the cumulative SEL is calculated as follows.

$$SEL_{cumulative} = 175 + 10\log(1{,}000) = 175 + 30 = 205 \text{ dB}$$

This method cannot be applied to hoe-ram activity because more than one ram strike will typically occur within one second. In addition, the nature of hoe-ram demolition does not result in consistent single strike SEL values or strikes that can be readily counted. In this situation real time monitoring of the cumulative SEL value is the best approach to ensuring that the cumulative SEL criterion is not exceeded. The approach to measuring cumulative SEL based on real time monitoring is described below.

Underwater Noise Impact Criteria

Over the last 10 years, criteria for evaluating potential effects on fish from sound generated by pile driving have evolved as a result of work conducted by the Fisheries Hydroacoustic Working Group (FHWG). This group includes representatives from the Federal Highway Administration (FHWA), departments of transportation in Oregon and Washington, National Oceanic and Atmospheric Administration Fisheries (NOAA) (Southwest), NOAA Fisheries (Northwest), United States Fish and Wildlife Service, the California Department of Fish and Game, and the Unites States Army Corps of Engineers. Technical fisheries and noise experts also participate in the FHWG.

A meeting of the FHWG in June 2008 resulted in the Agreement in Principal for Interim Criteria for Injury to Fish from Pile Driving Activities (Fisheries Hydroacoustic Working Group 2008). The agreed upon criteria identify sound pressure levels of 206 dB peak and 187 dB cumulative SEL for all listed fishes except those weighing less than 2 grams. For such fishes, the criterion for the cumulative SEL is 183 dB. These criteria were developed specifically for impact pile driving and were not designed to address underwater noise generated by vibratory pile driving, demolition activities, or other sources.

Monitoring Plan

Equipment

Measurements will be made with hydrophones that have a flat frequency response and are omni-directional over a frequency range of 10 to 10kHz. The selected hydrophone system setup will be designed to withstand the marine and construction environment. The signals will be fed into an appropriate date-logging device, such as an integrating sound level meter (SLM). The systems will have the capability to make quality recordings using a solid state digital audio recorder. The accuracy of the measurement system will be 1 dB from 10 to 10,000 Hz.

The anticipated measurement range for peak sound pressures shall be 160 to 200 dB referenced to 1 micro Pascal (µPa). The measurement system will be able to measure the unweighted or C-weighted sound exposure level in dB referenced to 1 µPa second. The measurement systems will have the capability to provide a real time readout display of measured underwater sound levels. The real-time display will provide the unweighted peak sound pressure and sound exposure level. These data will also be logged during the required measurement event. The maximum peak sound pressure levels along with the sound exposure level for each continuous 1-second period during the event will be captured. Table 2 summarizes the required equipment specifications.

Table 2
Equipment for underwater sound monitoring

Item	Specifications	Quantity	Usage
Hydrophone	Receiving Sensitivity- 211dB ±3dB re 1V/µPa	5	Capture underwater sound pressures and convert to voltages that can be recorded/analyzed by other equipment.
Signal Conditioning Amplifier	Amplifier Gain- 0.1 mV/pC to 10 V/pC Transducer Sensitivity Range- 10^{-12} to 10^{3} C/MU	5	Adjust signals from hydrophone to levels compatible with recording equipment.
Calibrator (pistonphone-type)	Accuracy- IEC 942 (1988) Class 1	1	Calibration check of hydrophone in the field.
SLM and Solid State Recorder	Sampling Rate- 24K Hz or greater	5	Measures and Records data
Laptop computer	Compatible with digital analyzer	1	Store digital data on hard drive
Post-analysis	Real time Analyzer-	1	Monitor real-time signal and post-analysis of sound signals.

Note: All have current National Institute of Standards and Technology (NIST) traceable calibration.

Calibration of measurement systems will be established prior to use in the field each day. An acoustical piston phone and hydrophone coupler will be used along with manufacturer calibration

certificates to calibrate the measurement system. Calibration of measurement systems will be established as follows:

> Use an acoustically certified piston phone and hydrophone coupler that fits the hydrophone that directly calibrates the measurement system. The volume correction of the hydrophone coupler using the hydrophone is known so that the piston phone produces a known signal that can be compared against the measurement system response. The response of the measurement system is noted in the field book and applied to all measurements.

The SLMs will be calibrated to the calibration tone prior to use in the field. The tone will then be measured by the SLM and recorded on to the beginning of the digital audio recordings that will be used. The system calibration status will be checked by measuring the calibration tone and recording the tones. The recorded calibration tones will be used for subsequent detailed analyses of recorded sound data. The equipment will be calibrated and set to properly measure sounds; i.e. sounds must not overload the instrumentation.

Location

All hydroacoustic monitoring will be conducted at locations where the water is at least one meter deep. This is the minimum distance recommended in the Caltrans manual "Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish" (Caltrans 2009).

Hydrophones will be placed at mid water depth at each location. A weighted tape measure will be used to determine the depth of the water and the measurement depth of each hydrophone. The hydrophones will be attached to a nylon cord or a steel chain if the current is swift enough to cause strumming of the line. The nylon cord or chain will be attached to an anchor that will keep the hydrophone at the specified location. The nylon cord or chain will be attached to a float or tied to a static line at the surface at the specified recording location.

Monitoring will be conducted at four fixed positions and several variable positions up and downstream from the bridge and across the width of the river. All monitoring will be conducted at locations where the water is at least one meter deep. Fixed Positions F1, F2, and F3 will be located as close to the northern shore as possible (nearest to Hinge 8) while maintaining one meter of water depth (Figure 2 attached). Position F2 will be located near the bridge and Positions F1 and F3 will be located 150 feet downstream and upstream respectively from Position F2. Position F4 will be located near the bridge 150 feet south from Position F2. Variable monitoring positions will be located within the highlighted polygon area shown in Figure 2 (attached) with initial positions being closest to the northern shore (nearest to Hinge 8) while maintaining one meter water depth. Variable monitoring positions will be at least 150 feet beyond fixed positions F1, F3, and F4 (e.g., variable positions would not occur within the 150 foot distance located between Position F2 and Positions F1, F3, and F4). In addition, variable monitoring positions will be located at least 150 feet from a previous variable position. The actual fixed positions shown in Figure 2 (attached) may change as necessary to ensure that the measurements are taken in water that is 1 meter deep.

Based on the type of sound-generating activities (e.g., hoe-ram) and anticipated underwater sound levels of 169dB-peak and 146 dB-SEL cumulative (ICF International 2012), one monitoring station would be sufficient to adequately measure the in-water sound levels. The additional monitoring positions indicated in this plan are at the request of the Coastal Commission.

Staffing, Timing, and Communication

The Coastal Commission is requiring hydroacoustic monitoring during hoe-ram activities for the first complete half width removal of Hinge 8. It is anticipated that this will require approximately 6 hours of hoe-ram operation per day for 7 to 10 days.

Hydroacoustic monitoring will be conducted by at least two technical staff from the project acoustical consulting team. A Caltrans employee authorized to direct the demolition contractor and a biological monitor will be on site during all active hoe-ram demolition activities. The hydroacoustic monitoring staff will have direct radio or cell phone communication with the authorized Caltrans employee and biological monitor at all times during active hoe-ram demolition. Active hoe-ram demolition will not start until the biological monitor is on site and has verified that the hydroacoustic monitoring program is ready to commence.

Exposure Criteria

If exceedance of the following criterion occurs, all pertinent demolition operations will be immediately stopped and will not recommence until the Coastal Commission Executive Director, in consultation with the fisheries biologists of the California Department of Fish & Game and the National Marine Fisheries Service, so authorizes:

- Peak sound pressure level at or above 206 dB re: one micro-pascal from any single hoe-ram strike against the bridge
- Cumulative Sound Exposure Level at over above 183 dB re: one micro-pascal

Although not specified in the permit, the cumulative sound exposure level is assumed to be for any given single day of hoe-ram operation at any single position.

Hydroacoustic Monitoring Method

A weighted tape measure will be used to determine the depth of the water and to locate the hydrophone at mid-depth. An anchor or other means of restraint will be used to maintain the position of the hydrophone. To the extent practicable, a direct line of sight between the Hinge 8 demolition activities and the hydrophones will be maintained.

The acoustic signal from each hydrophone will be continuously recorded during each measurement session to allow for subsequent lab analysis. The peak sound level and cumulative sound exposure level displayed on the sound level meter connected to each hydrophone will be monitored in real time during each measurement session as well.

All field notes would be recorded in water-resistant field notebooks. Such notebook entries will include operator's name, date, time, calibration notes, measurement positions, measured sound levels, hoe-ram information, duration of hoe-ram operations (including start and stop times), system gain setting, and equipment used to make each measurement.

Prior to commencement of hoe-ram demolition at Hinge 8 each day, ambient sound levels will be measured at the fixed positions and the first variable position for at least 1 minute. Measured ambient sound levels will be reported as an overall RMS value averaged over the measurement period. The RMS value, as opposed to peak or SEL value, is used because the goal of the

measurement is to characterize the average sound level over the measurements period. Peak and SEL values are used to characterize discrete events such as pile strikes and are not appropriate for characterizing the ambient sound level. A frequency analysis of the averaged acoustic signal will be conducted and a frequency spectrum of the signal will be reported along with the overall RMS value. If possible, a one minute ambient measurement will be conducted each time the variable position is moved. This may not be possible because hoe-ram operations will continue while the variable position is changed and set up at the next location.

Measurements at the fixed positions will be conducted continuously during active hoe-ram operations for the first complete half width removal of Hinge 8.

Measurements at the variable positions will be a minimum of 60 minutes in duration unless measured levels approach either of the exposure criteria. A measured level is considered to approach a criterion level if it is within 3 dB of the criterion. If either criterion level is approached, monitoring will continue at the variable location until operations for that day are completed or until either criterion is exceeded. If after 60 minutes the criterion levels are not approached or exceeded, the variable measurement location will be moved to the next closest location alternating between upstream and downstream locations. This process of moving the upstream and downstream positions will continue throughout the Hinge 8 hoe-ram demolition operations.

For impact pile driving the cumulative SEL value can be determined in two ways. With the first method the number of strikes and the measured single strike SEL value are used to calculate a cumulative SEL value. This requires post processing of data after the monitoring session has been completed. With the second method, the cumulative SEL is directly measured in real time using the sound meter connected to the hydrophone. In the case of hoe-ramming, the post processing calculation method is not possible because hoe-ram operations involve a series of rapid and highly variable strikes. In addition, the ram head is often embedded in the concrete making it impossible to visually observe individual strikes. Unlike pile driving which typically imparts consistent levels of energy in a slow and methodical manner, concrete demolition applies variable levels of energy in a somewhat chaotic manner at constantly moving locations in the work area. Counting individual strikes and measuring single strikes SEL values cannot be done in this situation. Real time monitoring of the peak and cumulative SEL value (Equipment section, page 4) will be conducted at each monitoring location (both fixed and variable). This will provide the best available approach to ensuring that the peak and cumulative SEL criterion is not exceeded.

For each fixed position, the SEL accumulation will occur throughout each day of monitoring and will be reset for each new day of monitoring. For the variable position that could be moved several times a day, the SEL accumulation will be re-set each time the hydrophone is moved to a new position because the purpose of the measurement is to characterize the measured sound level that is unique to each position. In order to ensure that current thresholds are not exceeded, the data at the fixed and variable positions will be monitored continuously. Monitoring will include direct observation of the sound meter, which, as previously described, includes a display screen that shows real time peak and accumulated SEL values. The data will be interpreted by analyzing the on-screen peak and accumulated SEL levels to determine if thresholds are exceeded. If, at any time, exceedance of the criterion occurs at any monitoring position either fixed or variable, all pertinent demolition operations will be immediately stopped and will not recommence until the Coastal Commission Executive Director, in consultation with the fisheries biologists of the California Department of Fish & Game and the National Marine Fisheries Service, so authorizes.

As background, NOAA Fisheries has determined that single strike SEL values less than 150 dB do not accumulate to cause potential injury to fish. In determining if the cumulative SEL criterion is exceeded, consideration will be given to the measured "one second" SEL value during hoe-ram activity. If "one-second" SEL values remain below 150 dB for the entire measurement period then exceedance of the cumulative SEL criterion will not be considered to occur even if the measured cumulative SEL values exceeds the applicable cumulative SEL criterion (183 dB or 187 dB). If "one-second" SEL values exceed 150 dB during part of the measurement, the cumulative SEL value used for comparison to the criterion will be adjusted to exclude sound energy associated with SEL values that are less than 150 dB.

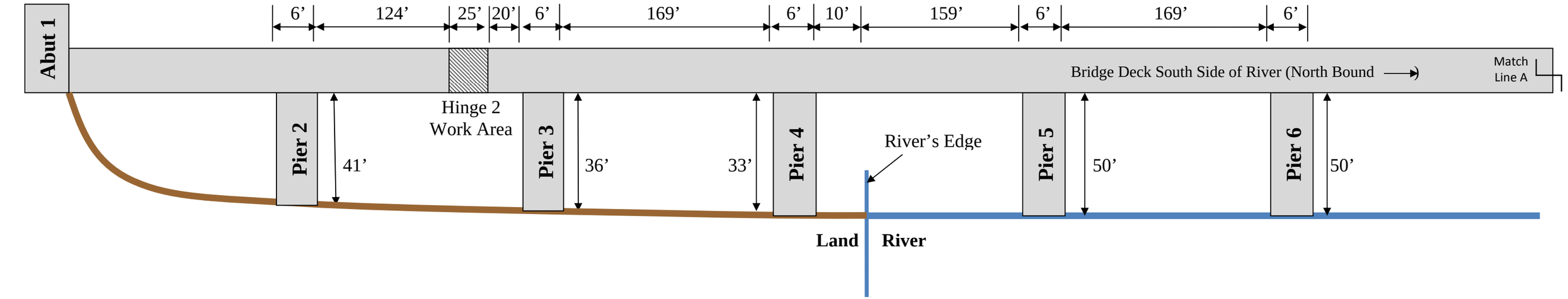
Hydroacoustic Monitoring Report

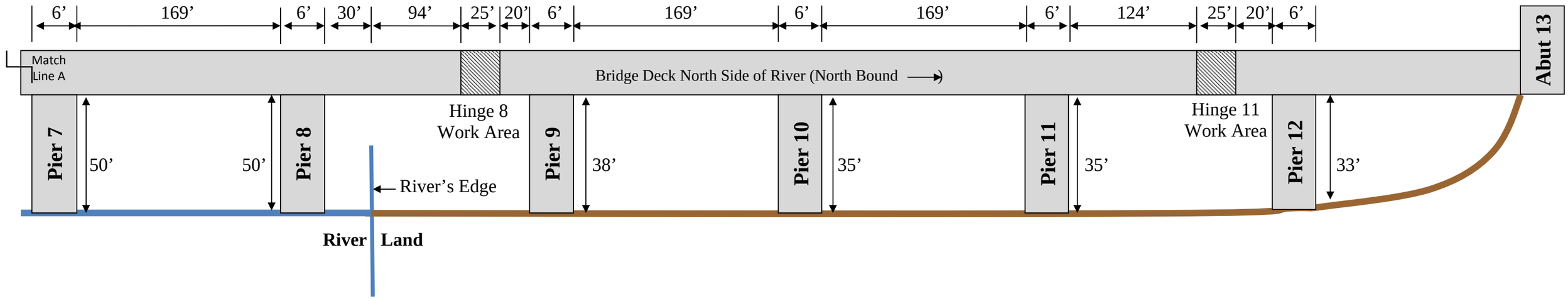
A final written hydroacoustic monitoring report will be prepared by the consulting acoustician within thirty days after completion of Hinge 8 demolition. The report will include but is not limited to the hydroaoustic monitoring data, any changes or problems with the field monitoring plan, compliance with the exposure criteria, and description of and assessment of the efficacy of any adaptive measures that were implemented in the demolition activities as the result of the monitoring, or of any field adjustments of the monitoring plan itself. The final report will include an assessment of the monitoring plan and recommendations for changes or additions to future monitoring efforts. The final report will compare the predicted acoustic impacts of the Hinge 8 demolition with the actual measurements taken during the demolition activities. The report will include a reconciliation of modeled and measured sound levels and provide recommendations for adaptation and/or improvement of future demolition modeling efforts, if applicable.

References

Caltrans. 2009. Technical guidance for assessment and mitigation of the hydroacoustic effects of pile driving on fish. Sacramento, CA.

ICF International. 2012. Klamath bridge hinge repair underwater noise analysis. Memo prepared by David Buehler, P.E.





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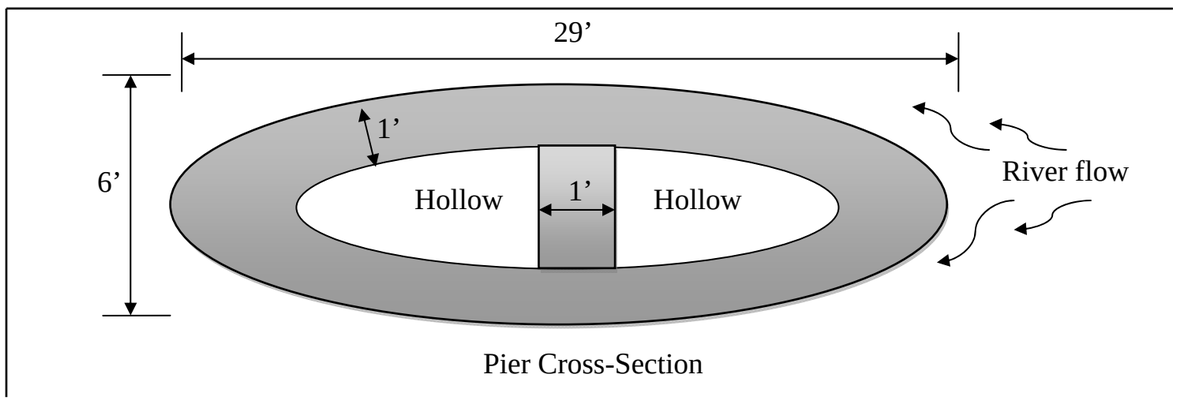

Pier Cross-Section

Figure 1. Klamath River Bridge Hinge Replacement Project

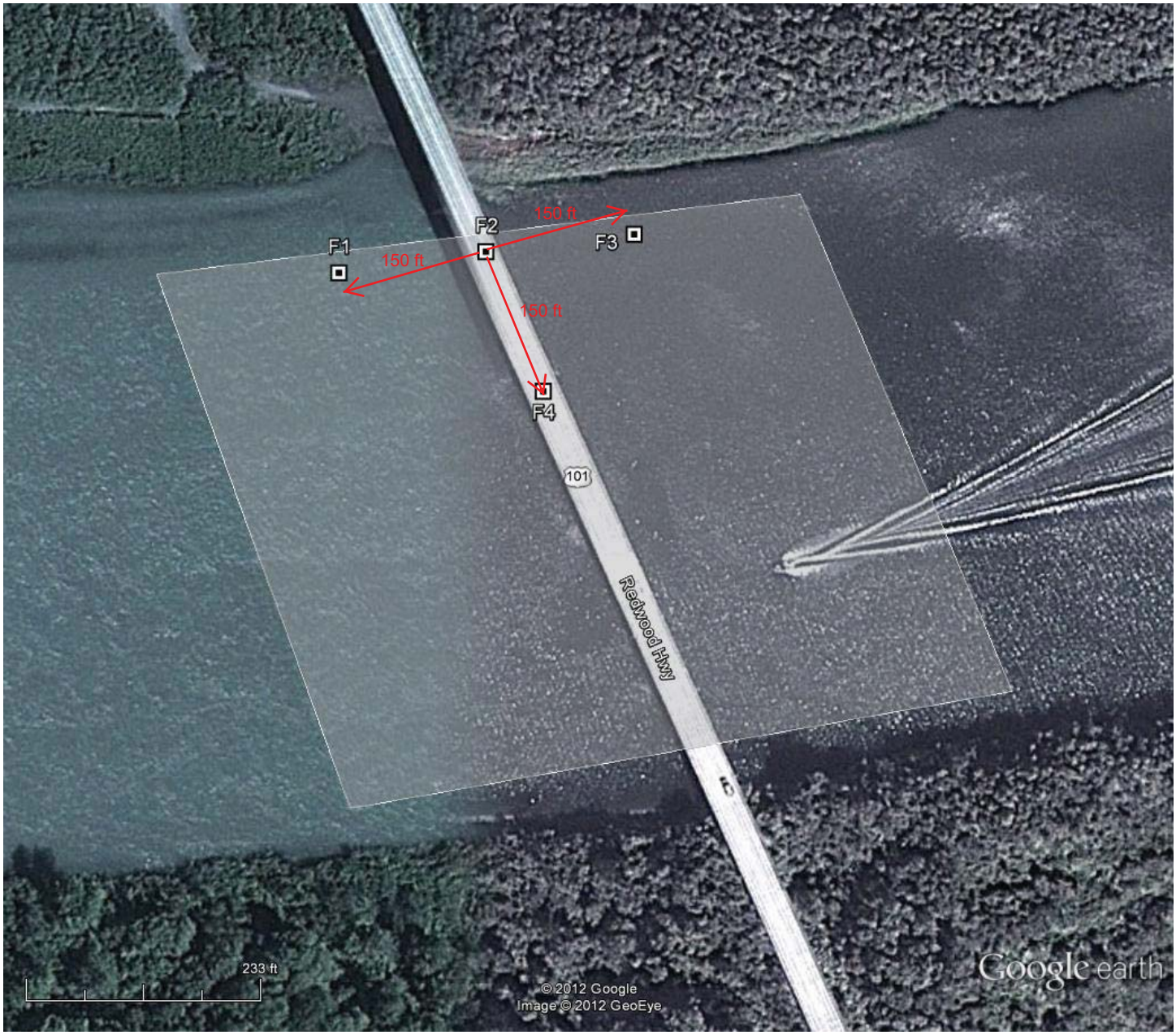

Figure 2. Proposed Fixed Noise Monitoring Positions and Variable Noise Monitoring Zone

Note: Positions F1 through F4 are fixed monitoring positions. Variable monitoring positions will be located within the highlighted polygon area with initial positions being closest to the northern shore (closest to Hinge 8). Variable monitoring positions will be at least 150 feet beyond Positions F1, F3, and F4 (e.g., variable positions would not occur between the 150 foot distance located between position F2 and positions F1, F3, and F4). In addition, variable monitoring positions will be located at least 150 feet from a previous variable position. Monitoring positions will be at locations where the water is at least 1 meter deep. The actual fixed positions shown here may change as necessary to ensure that the measurements are taken in water that is 1 meter deep. Positions F1, F2, and F3 will be as close to the northern shore as possible while maintaining 1 meter water depth.

Memorandum

Date:	June 8, 2012
To:	Steve Croteau California Department of Transportation—North Region Environmental 1656 Union Street Eureka, CA 95501
From:	David Buehler, P.E.
Subject:	**Klamath Bridge Hinge Repair Underwater Noise Analysis**

Introduction

The California Department of Transportation (Caltrans) is planning to repair the United States Route 101 bridge over the Klamath River in northern California. Work will include demolishing part of the bridge deck with hoe rams where three bridge hinges will be replaced. This memorandum evaluates underwater noise levels that potentially will be generated by hoe ram activities.

California Coastal Commission staff has asked for my qualifications for conducting the technical analysis provided in the memo. These qualifications are provided in Appendix A, below.

Vibration and Underwater Noise Fundamentals

Vibration

Operation of heavy construction equipment, particularly pile-driving and other impact devices such as pavement breakers, creates seismic waves that radiate along the surface of the earth and downward into the earth. These surface waves can be felt as ground vibration. Vibration from operation of this equipment can result in effects ranging from annoyance of people to damage of structures. Varying geology and distance will result in different vibration levels containing different frequencies and displacements. In all cases, vibration amplitudes decrease with increasing distance.

Perceptible ground-borne vibration is generally limited to areas within a few hundred feet of construction activities. As seismic waves travel outward from a vibration source, they excite the particles of rock and soil through which they pass and cause them to oscillate. The actual distance that these particles move is usually only a few ten-thousandths to a few thousandths of an inch. The rate or velocity (in inches per second) at which these particles move is the commonly accepted descriptor of the vibration amplitude, referred to as the peak particle velocity (PPV).

Vibration velocity can also be expressed using decibel notation (VdB). Table 1 summarizes typical vibration amplitudes and levels generated by construction equipment (Federal Transit Administration 2006).

Table 1. Vibration Amplitudes and Velocities for Construction Equipment

Equipment	PPV (inches/second) at 25 feet	Vibration Level (VdB) at 25 feet
Pile driver—upper range (impact)	1.518	112
Pile driver—typical (impact)	0.644	104
Pile drive—upper range (vibratory)	0.734	105
Pile drive (sonic/vibratory)	0.170	93
Vibratory roller	0.210	94
Hoe ram	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

Source: Federal Transit Administration 2006.

Vibration amplitude attenuates over distance and is a complex function of how energy is imparted into the ground and the soil conditions through which the vibration travels. The Federal Transit Administration (FTA) (2006) provides the following equations to estimate the vibration amplitude or level at a given distance for typical soil conditions; PPV_{ref} is a reference value from Table 1:

$$PPV = PPV_{ref} \times (25/\text{distance})^{1.5}$$

$$VdB\ (\text{at distance}) = VdB\ (\text{at 25 feet}) - 30\log(\text{distance}/25)$$

Caltrans (2004) identifies a similar equation for vibration attenuation based on various soils types.

$$V = kD^{-n}$$

Where

V = PPV of the seismic wave

k = value of velocity at 1 unit of distance

D = distance from the vibration source

n = slope or attenuation rate

The recommended slope attenuation rates are as follows (California Department of Transportation 2004).

Class I soils (n=1.4): Weak or soft soils—loose soils, dry or partially saturated peat and muck, mud, loose beach sand and dune sand, recently plowed ground, soft spongy forest or jungle floor, organic soils, topsoil. *(Shovel penetrates easily.)*

Class II soils (n=1.3): Competent soils—most sands, sandy clays, silty clays, gravel, silts, weathered rock. *(Can dig with shovel.)*

Class III soils (n=1.1): Hard soils—dense compacted sand, dry consolidated clay, consolidated glacial till, some exposed rock. *(Cannot dig with shovel, need pick to break up.)*

Class IV soils (n=1.0): Hard, competent rock—bedrock, freshly exposed hard rock. *(Difficult to break with hammer.)*

The slope attenuation rates identified above correlate to the following decibel attenuation rates:

Class I soils (n=1.4): 8.4 dB per doubling of distance.

Class II soils (n=1.3): 7.8 dB per doubling of distance.

Class III soils (n=1.1): 6.6 dB per doubling of distance.

Class IV soils (n=1.0): 6 dB per doubling of distance.

These rates are consistent with the two FTA equations above where the exponent of 1.5 correlates to a decibel attenuation rate of 9 dB per doubling of distance.

Tables 2 and 3 summarize the typical human sensitivities to transient and continuous vibration that is usually associated with construction activity. Equipment or activities that typically emit continuous vibration include excavation equipment, static compaction equipment, tracked vehicles, traffic on a highway, vibratory pile drivers, pile-extraction equipment, and vibratory compaction equipment. Equipment or activities that typically emit single-impact (transient) or low-rate repeated impact vibration include impact pile drivers, blasting, drop balls, pogo stick compactors, and crack-and-seat equipment (California Department of Transportation 2004).

Table 2. Typical Human Sensitivity to Transient Vibration

PPV	Human Sensitivity
2.0	Severely perceptible
0.9	Strongly perceptible
0.24	Distinctly perceptible
0.035	Barely perceptible

Source: California Department of Transportation 2004.

Table 3. Typical Human Sensitivity to Continuous Vibration

PPV	Human Sensitivity
3.6 (at 2 Hz) to 0.4 (at 20 Hz)	Very disturbing
0.7 (at 2 Hz) to 0.17 (at 20 Hz)	Disturbing
0.10	Strongly perceptible
0.035	Distinctly perceptible
0.012	Slightly perceptible

Source: California Department of Transportation 2004.

Underwater Noise

Because decibels used for airborne sound measurement use a reference level that is different from the reference level used for water, airborne sound levels and underwater sound levels cannot be directly compared. Table 4 provides a range of typical underwater sound levels.

Table 4. Typical Sound Levels in Underwater Environments

Sound Source	Sound Pressure Level (dB-RMS[1])
High explosive at 100 meters	220
Airgun array at 100 meters	200
Unattenuated pile strike at 200–300 meters	180
Large ship at 100 meters	160
Fish trawler passby (low speed) at 20 meters	140
Background with boat traffic (ranging from quiet estuary to water body with boat traffic)	60–100

[1] RMS defined below.

Pile driving in water produces underwater sound that can affect fish. The Caltrans *Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish* (2009) provides a thorough discussion of this issue, including detailed definitions of terminology and measurement metrics.

The following three metrics are commonly used in evaluating hydroacoustic impacts on fish and are expressed in terms of decibels relative to 1 micro-pascal:

- Peak sound pressure level (L_{peak}),
- Root mean square (RMS) level, and
- Sound exposure level (SEL).

The following is a brief discussion of these metrics. When a pile is struck it essentially rings like a bell as indicated below in Figure 1, which plots sound pressure as a function of time for a single pile strike. A pulse is produced that results in an initial instantaneous maximum or peak sound level. After being struck, the pile continues to ring and the sound generated by the pile dies out after about 20 milliseconds. SEL is a measure of the total sound energy associated with the strike event. The RMS value is the square root of the sum of the squares of the pressure contained within a defined period of the waveform. The RMS level expresses the RMS value in decibels.

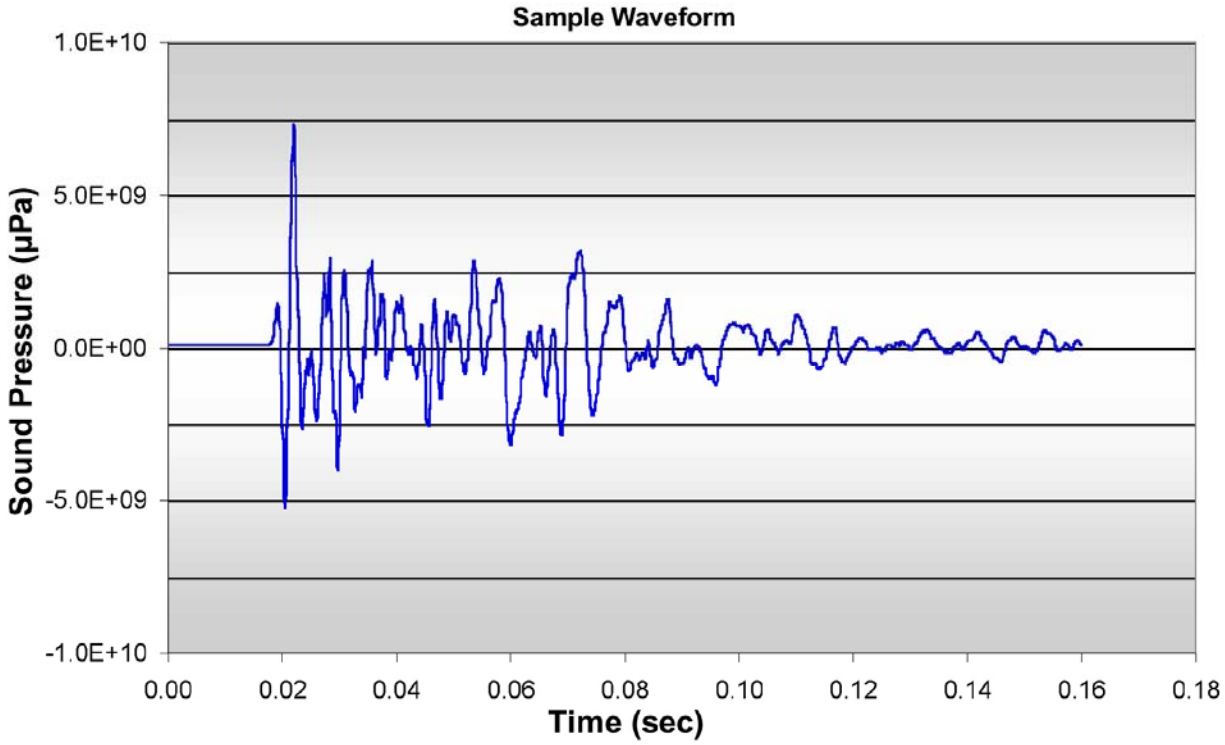

Figure 1. Typical Pile Driving Sound Pressure Waveform

If there are multiple pile strikes within a given period of time, the sound energy from all of those strikes can be added up or accumulated to develop a cumulative SEL value ($SEL_{cumulative}$). With impact pile driving a typical SEL value for single strikes can usually be measured. With the single SEL value and the number of strikes, the cumulated SEL value can be calculated. For example, if it takes 1,000 strikes to install a pile and the single strike SEL is 175 dB, the cumulative SEL is calculated as follows.

$$SEL_{cumulative} = 175 + 10\log(1{,}000) = 175 + 30 = 205 \text{ dB}$$

Underwater Noise Impact Criteria

Over the last 10 years, criteria for evaluating potential effects on fish from sound generated by impact pile driving have evolved as a result of work conducted by the Fisheries Hydroacoustic Working Group (FHWG). This group has representatives from the Federal Highway Administration (FHWA), departments of transportation in Oregon and Washington, National Oceanic and Atmospheric Administration (NOAA) Fisheries Southwest, NOAA Fisheries Northwest, the United States Fish and Wildlife Service, the California Department of Fish and Game, and the Unites States Army Corps of Engineers. Technical fisheries and noise experts also participate in the FHWG.

A meeting of the FHWG in June 2008 resulted in the *Agreement in Principal for Interim Criteria for Injury to Fish from Pile Driving Activities* (Fisheries Hydroacoustic Working Group 2008). The agreed upon criteria identify sound pressure levels of 206 dB peak and 187 dB cumulative SEL as injury thresholds for all listed fishes except those weighing less than 2 grams. For such fishes, the criterion for the cumulative SEL is 183 dB.

NOAA Fisheries also uses 150 dB-RMS as a threshold for behavioral effects. Although this threshold is commonly used to evaluate the potential for adverse behavioral effects, to date NOAA Fisheries has not required implementation of attenuation systems where exceedance of 150 dB-RMS is indicated.

By definition, the peak and $SEL_{cumulative}$ criteria only apply to impact pile driving. There are no formally adopted criteria for vibratory pile driving or other vibration-generating activities, such as bridge demolition with a hoe ram. In the absence of criteria for these sources, the interim criteria for impact pile driving are often applied. It is, however, generally accepted that this is a highly conservative approach. Refer to pages 4-21 and 4-22 of the Caltrans Guidance Manual (California Department of Transportation 2009) for a discussion of this issue.

NOAA Fisheries has developed an Excel spreadsheet for calculating distances within which either the peak or accumulated SEL criteria would be exceeded based on several pile-driving parameters. The spreadsheet is available here: http://www.wsdot.wa.gov/NR/rdonlyres/1C4DD9F8-681F-49DC-ACAF-ABD307DAEAD2/0/BA_NMFSpileDrivCalc.xls

NOAA Fisheries has provided the following guidance within the spreadsheet:

> "… all strikes in any given day are counted, regardless of time between strikes. However, generally the accumulated SEL can be reset to zero overnight (or after a 12 hour period), especially in a river or tidally-influenced waterway when the fish should be moving."

Additional guidance in the spreadsheet relates to the notion of "Effective Quiet" and says:

> "Effective Quiet. When the received SEL from an individual pile strike is below a certain level, then the accumulated energy from multiple strikes would not contribute to injury, regardless of how many pile strikes occur. This SEL is referred to as 'effective quiet', and is assumed, for the purposes of this spreadsheet, to be 150 dB (re: 1 μPa2*sec). Effective quiet establishes a limit on

> the maximum distance from the pile where injury to fishes is expected – the distance at which the single strike SEL attenuates to 150 dB. Beyond this distance, no physical injury is expected, regardless of the number of pile strikes."

In summary, when SEL values are less than 150 dB it is assumed that there is no accumulation of sound energy relative to the $SEL_{cumulative}$ criterion.

Impact Assessment

Bridge Deck Demolition—Underwater Noise

Three hinges identified as Hinge 2, Hinge 8, and Hinge 11 on the bridge will be repaired. Figure 2 (attached) shows the locations of the hinges relative to edge of the river. At each hinge location concrete must be removed from the bridge deck with impact equipment. For the purposes of this assessment, it is assumed that a hoe ram or similar device will be used. Caltrans has developed a construction specification that will limit hoe ram energy to 1,200 ft-lbs. Hoe ram energy needs to be limited to avoid damage to nearby areas of the bridge structure that are not being demolished.

It is anticipated that hoe rams will operate at a horizontal distance of no less than 94 feet from the edge of the river, with Hinge 8 being the closest hinge to the river. The location of the edge of the river fluctuates with changes in the tide. Actual vibration transmission paths will be longer because vibration energy will be traveling through the bridge and vertical bridge columns. There are no measured underwater sound level data for operation of a hoe ram on a structure in this configuration.

To develop a reasonable estimate of underwater sound that would potentially result from operation of a hoe ram on a structure, a relationship was determined between the ground vibration level at the water's edge and the measured underwater sound level from pile driving on land. Table 5 (attached) shows the measured underwater sound levels for driving 24-inch-diameter piles at a distance of 230 feet from the water. The ground vibration level produced by pile driving is typically 104 VdB at 25 feet (FTA 2006). Soil borings in the project area indicate that soils fall into the Class II category (n = 1.3), which corresponds to an attenuation rate of 7.8 dB per doubling of distance. This attenuation rate was used to estimate the ground vibration level at the water's edge. A decibel adjustment relationship between the ground vibration level and the measured underwater noise level was then developed. Table 5 (attached) shows the results of this analysis and the adjustment used to estimate underwater sound levels from ground vibration levels at water's edge.

Table 6 (attached) summarizes the evaluation of underwater noise resulting from hoe ram operation at each hinge. Hinge 8 is the critical hinge because it is the closest hinge to the water.

A 1,200 ft-lbs hoe ram typically produces a vibration level of 89 VdB at 25 feet (Federal Transit Administration 2006; California Department of Transportation 2004). Several vibration paths from the hoe ram to the water, including paths through the structure and the ground, were evaluated for each hinge. These paths are identified in Figure 2 (attached) as Paths A through C at Hinge 2, Paths D through F at Hinge 8, and Paths G and H at Hinge 11. An attenuation rate of 6 dB per doubling of

distance was used for the concrete path; this is the rate through solid rock and is considered reasonable for transmission through concrete because concrete is a highly dense material similar to rock. To simplify the calculation, an attenuation rate of 6 dB per doubling of distance was used for transmission through the ground as well. This results in a somewhat more conservative (i.e. higher) result relative to assuming an attenuation rate of 7.8 dB per doubling of distance in the ground. Once the ground vibration level at the water's edge was estimated, the adjustment from Table 5 (attached) was applied to estimate the underwater sound level.

The predicted underwater peak sound levels produced by operation of the hoe ram are more than 35 dB below the peak threshold of 206 dB. Consequently, hoe ram operation is not expected to exceed the 206 dB peak criterion. Per guidance from NOAA Fisheries, SEL values below 150 dB do not accumulate. In this case all predicted SEL values are below 150 dB and exceedance of the accumulated threshold is not indicated either. The results of this analysis are summarized in Table 6 (attached).

It should be noted that the shortest transmission path from the hoe-ram location at Hinge 8 to the river water is along Path D through Pier 8, which is located directly in the river (Figure 2). Vibration transmitted along Path D is expected to govern underwater sound levels generated by the hoe ram at Hinge 8. Given that Pier 8 is located in the river, the horizontal distance between the hoe ram location at Hinge 8 and the river's edge will not affect underwater sound levels produced by vibration that travels along Path D. Given this, limiting hoe ram operations to a specific horizontal distance would have no effect on the Path D sound transmission path and would not provide any protective measure to fish species.

Concurrent Demolition at Hinges 8 and 11

Coastal Commission staff has expressed concern that concurrent demolition operations would result in exceedance of fish injury thresholds that are not otherwise indicated with non-concurrent operations. As a result, an analysis of concurrent hoe ram operations at Hinges 8 and 11 was conducted.

First, it is important to understand a fundamental aspect of sound and vibration decibel levels. If two sources of sound or vibration that produce the same sound or vibration level are placed next to each other, the combined sound or vibration level is 3 dB higher than the sound or vibration level of a single source. For example, if a compressor produces a sound level of 80 dBA at a distance of 50 feet, two compressors producing the same sound level would produce a combined sound level of 83 dB at 50 feet. If one source is 80 dB and the other 75 dB, the combined sound level is 81 dB. The equation for calculating the combined sound level of two sources is:

$$dB_{1+2} = 10\log(10^{(dB_1/10)}+10^{(dB_2/10)})$$

A consequence of this calculation is that when two sources differ in level by more than 10 dB, the combined sound or vibration level is not influenced by the lower sound or vibration level. For example, the combined sound level of sources at 50 dB and 60 dB is 60 dB. The lower source does not influence the overall combined sound level.

As can be seen in Table 6 (attached), and as would be expected, underwater sound levels produced by operations at Hinge 11 are expected to be substantially less than levels produced at Hinge 8. With these values differing by more than 10 dB, the combined sound is not expected to be influenced by the lower sound level produced at Hinge 11. This also assumes that the equipment would be operating at exactly the same time, which will likely be infrequent given the intermittent nature of demolition work.

In summary, this analysis indicates that concurrent operations at Hinge 8 and Hinge 11 would not worsen in-water sound levels relative to one hoe ram operating at Hinge 8.

Potential Mitigation

This analysis indicates that bridge deck demolition would not result in underwater noise levels that exceed the interim criteria for impact pile driving. Accordingly, no mitigation is indicated.

References

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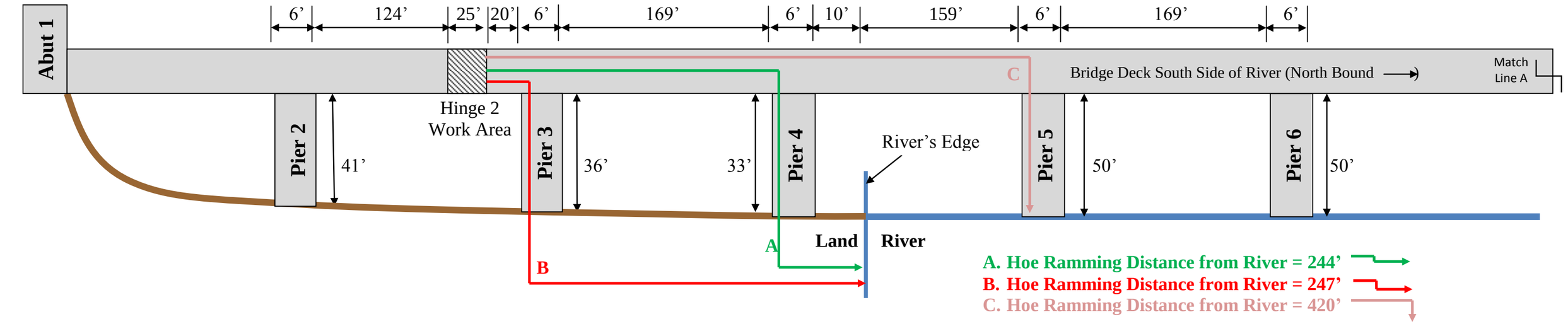
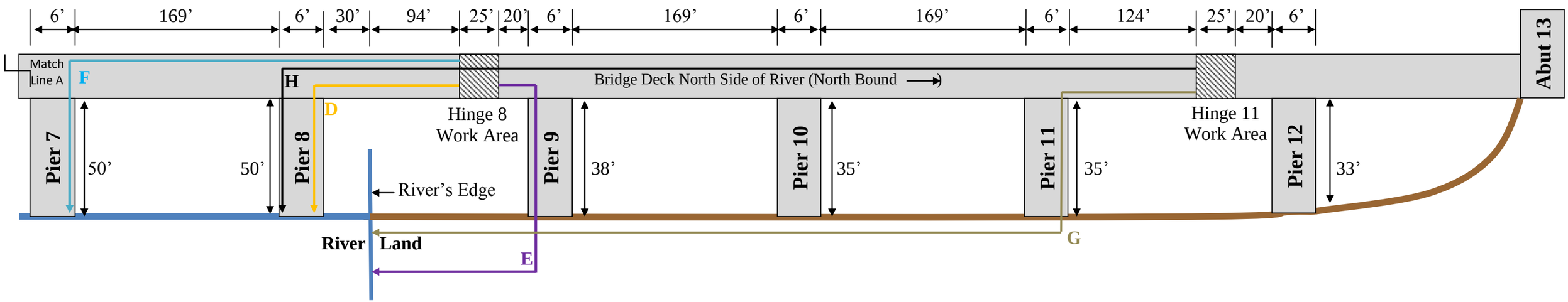
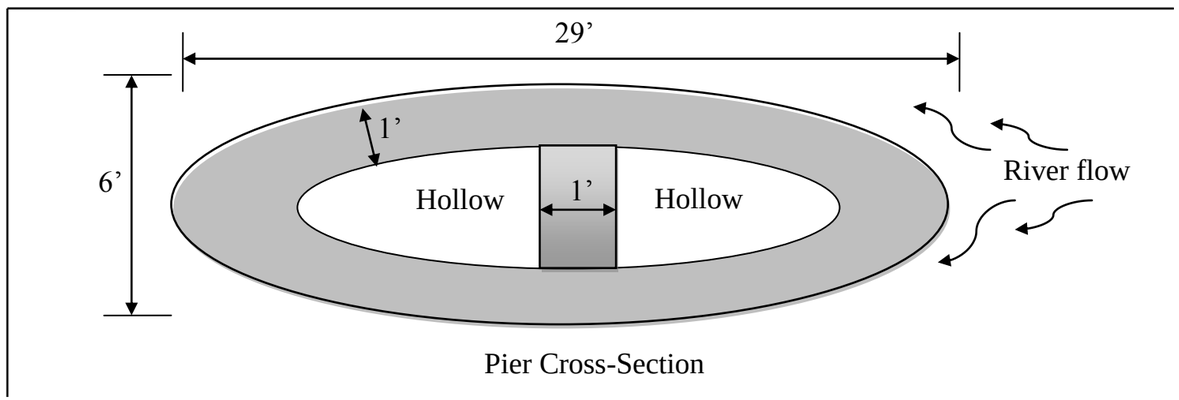
Figure 2. Klamath River Bridge Hinge Replacement Project: Work Distance from River







Not to Scale

Table 5. Development of Relationship between Ground Vibration at River Edge and Underwater Sound Level

Reference Distance (m)	Reference Distance (ft)	Measured Underwater Sound Level			Estimated Vibration Amplitude at Edge of River (based on Reference Level of 104 dBV at 25 feet)[1]	Adjustment from Vibration at Water Edge to Underwater Sound Level			Reference
		Peak	RMS	SEL		Peak	RMS	SEL	
70	230	175	163	152	79	96	84	73	Caltrans 2009. Table I.2-3. 24-inch diameter steel pile on land. Russian River.

[1] 7.8 dB per doubling of distance for attenuation through soil.

Table 6. Bridge Deck Vibration/Underwater Noise Analysis (June 7, 2012)

Hinge	Hoe Ram Reference Amplitude at 25 feet (dBV)[1]	Path	Concrete Path Distance (feet)	Soil Path Distance (feet)	Total Transmission Path (feet)	Hoe Ram Amplitude at End of Soil/Edge of Water (dBV)[2]	Total Horizontal Distance (feet)	Relationship between Ground Vibration Level at Water Edge from Pile to Resulting Underwater Sound Level (dB)[3]			Estimated Hoe Ram Underwater Sound Level at River (dB)		
								Peak	RMS	SEL	Peak	RMS	SEL
2	89	A	228	16	244	69.6	211	96	84	73	166	154	143
	89	B	56	191	247	69.5	211	96	84	73	166	154	143
	89	C	420	0	420	64.9	211	96	84	73	161	149	138
8	89	D	174	0	174	72.5	94	96	84	73	169	157	146
	89	E	58	139	197	71.5	94	96	84	73	167	155	144
	89	F	349	0	349	66.5	94	96	84	73	163	151	140
11	89	G	159	495	654	61.0	619	96	84	73	157	145	134
	89	H	699	0	699	60.5	619	96	84	73	156	144	133
8 + 11[4]	-	-	-	-	-	-	-	-	-	-	169	157	146

[1] FTA 2006 and Caltrans 2004 for 1,200 ft-lb hoe ram.

[2] Vibration attenuation of 6 dB per doubling of distance through concrete and soil.

[3] See Table 5.

[4] Highest values at Hinges 8 and 11 summed. Because values at Hinge 11 are 10 dB less than at Hinge 8, the summed values equal the Hinge 8 values.

Appendix A – Qualifications for David Buehler, P.E.

The attached curriculum vitae (CV) provides an overview of my experience and other qualifications to conduct the analysis discussed in this memo. I will summarize my qualifications here. I have a Bachelor's of Science degree in Civil Engineering from California State University, Sacramento and am a licensed Professional Civil Engineer in California and a licensed Professional Acoustical Engineer in Oregon. Oregon is the only state in the United States that offers professional licensing for acoustical engineers. I am also a Board Certified Member of the Institute of Noise Control Engineering (INCE). This is the highest level of certification offered by INCE, which is the foremost professional organization in the United States for noise control engineers.

I have more than 30 years of experience working as a consultant in noise and vibration. Early in my career my experience included working on projects throughout the United States and in Asia and Europe where I measured, evaluated, and predicted ground vibration levels produced by traffic, trains, and heavy construction equipment and determined how that vibration would affect highly sensitive microelectronics production equipment.

For the past 20 years my focus has been on environmental noise and vibration studies for transportation, energy, and other development projects. Since 1998 I have been selected by Caltrans to manage four consecutive on-call contracts to provide noise and vibration services and have managed more than 80 task orders related to project-level and research-level noise and vibration studies, policy development, noise training, and guidance manual development.

Since about 2000 I have also worked extensively on the topic of underwater noise impacts on fish from pile driving. I have been a key participant in long series of meetings and negotiations conducted by the Fisheries Hydroacoustic Working Work (FHWG) to develop injury thresholds for underwater noise. As part of this I worked directly with staff from NOAA Fisheries, including John Stadler and David Woodbury, in the development of the interim thresholds that were ultimately adopted in June of 2008 at the FHWG meeting that I participated in. A copy of the agreement is located here: http://www.wsdot.wa.gov/NR/rdonlyres/4019ED62-B403-489C-AF05-5F4713D663C9/0/BA_InterimCriteriaAgree.pdf.

I am one of two principal authors of the Caltrans guidance document published in 2009 titled "Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish," which is located here: http://www.dot.ca.gov/hq/env/bio/files/Guidance_Manual_2_09.pdf (California Department of Transportation 2009). In this document I describe how to interpret and apply the interim thresholds for pile-driving projects. The analysis methods described are consistent with guidance that has been provided by NOAA Fisheries. Since publication of the guidance manual I estimate that I have conducted 10 to 15 project-level studies to evaluate underwater noise from pile driving.

As a result of my recognized expertise on this topic I was invited by the Transportation Research Board (TRB), a division of the National Research Council—which serves as an independent adviser to the President, the Congress and federal agencies on scientific and technical questions of national importance, to chair a session titled "Hydroacoustics: The Effects and Mitigation of Construction Sound on Fish and Wildlife" at the TRB 2010 national conference. In addition, I gave a presentation

titled “Overview of Pile Driving Impacts on Fish, Current Interim Impact Criteria, and the Caltrans Guidance Manual.”

In 2005 I received the Environmental Excellence Award from FHWA for Exemplary Achievement in Ecosystems, Habitat and Wildlife along with several other researchers and engineers who were working on this topic.

In summary, I believe that the discussion above and my CV demonstrate my qualifications to conduct this work.

David M. Buehler, P.E., INCE Bd. Cert.

Education
B.S., Civil Engineering, California State University, Sacramento

Registrations
Professional Acoustical Engineer: Oregon
Professional Civil Engineer: California

Professional Certifications
Board-certified member of the Institute of Noise Control Engineering
Certified by Caltrans to serve as an expert witness on highway noise issues

Professional History
ICF International (formerly Jones & Stokes Associates). Sacramento, CA. Principal. 1990 to present.
Frank Hubach Associates. Richmond, CA. Engineering Partner. 1984 to 1990.
ACI Engineering Consultants, San Francisco, CA. Consultant. 1981 to 1984.

Qualifications Summary

Mr. Buehler is a board-certified member of the Institute of Noise Control Engineering and has over 30 years of experience working as a noise and vibration engineer. Areas of focus include field investigations, impact and mitigation assessment, policy development, training development/implementation, and project management. Mr. Buehler leads and performs analyses of noise and vibration associated with transportation, industrial, energy, commercial, and other projects. He has prepared numerous noise studies in association with California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) documentation for highway, flood control, and energy projects. He has applied the methodology and criteria recommended by federal and state transportation agencies, including the Federal Highway Administration (FHWA), Federal Transit Administration (FTA) and the California Department of Transportation (Caltrans) to evaluate noise impacts and develop mitigation strategies. Mr. Buehler has been retained by Caltrans as an expert witness for several projects involving highway noise issues. He also has extensive experience developing technical guidance manuals and training related to highway traffic and construction noise and vibration. He has served as contract and project manager on four consecutive statewide noise/vibration on-call contracts with Caltrans, under which he has managed over 80 task orders.

Experience

Development and Implementation of Statewide Noise Training Program for the California Department of Transportation (1998 to 2005). Mr. Buehler worked with Caltrans headquarters staff to develop and implement a statewide highway noise training program. Developed nine training modules covering environmental noise fundamentals, the FHWA noise regulation (23CFR772), Caltrans noise policy for implementing the regulation, field investigation methods, computer modeling techniques, noise barrier design, and report preparation. After developing the training plan, Mr. Buehler conducted training for Caltrans headquarters and district staff throughout California. He was also invited by Caltrans to conduct training for noise consultants in the private section who want to work on Caltrans projects. He developed an on-line training version of several of the training modules that are currently available on the Caltrans website.

Development of Technical Guidance Manuals (2003 to 2009). Mr. Buehler has taken a lead role in the development of several guidance manuals for Caltrans. Served as technical editor of the 2009 update of the Caltrans Technical Noise Supplement (TeNS). This manual covers a broad range of technical issues related to

highway traffic noise including basics of highway noise, noise descriptors, measurements and instrumentation, impact and mitigation analysis, and technical report preparation.

He was the primary author and editor of the Caltrans Transportation- and Construction-Induced Vibration Guidance Manual. This manual provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. The manual covers the basic physics of groundborne vibration, construction vibration sources that are of concern to Caltrans, groundborne vibration propagation models, vibration receivers, vibration criteria, and methods for reducing the adverse effects of construction vibration.

Most recently he was a principal author of the Caltrans manual *Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish*. The purpose of this technical guidance manual is to provide Caltrans engineers, biologists, and consultants with guidance related to the environmental permitting of in-water pile driving projects. Specifically, this manual provides guidance on fundamentals of hydroacoustics, fish hearing, and hydroacoustic impacts on fish; environmental documentation and permit applications required for pile driving projects; assessment of potential impacts on fish and their habitat from sound generated from pile driving; measures to avoid or minimize pile driving impacts; and methods to assess impacts, mitigation, and compensation for pile driving impacts on fish.

Mr. Buehler also provided contract oversight in the development of document funded by Caltrans entitled *The Effects of Highway Noise on Birds*. This document developed by Dr. Robert Dooling and Dr. Arthur Popper of the University of Maryland addresses a broad range of issues related to how highway construction and operation noise affects birds.

Highway Noise Policy Development (2004 to present). In 2004 Caltrans initiated an effort to update its noise policy for implementing the FHWA traffic noise regulation (23CFR772) in California. Through a series of workgroup meetings, Mr. Buehler worked directly with Caltrans headquarters and district staff and FHWA staff to identify areas where the policy needed improvement and revision. He then took a lead role in revising and producing the revised policy document, the *Caltrans Traffic Noise Analysis Protocol*, in 2006. In July 2010, the FHWA published its final rule regarding changes to 23CFR772. Each state is required to revise its noise policies to reflect the substantial changes to the federal regulation. Mr. Buehler was retained by Caltrans to work directly with Caltrans and FHWA staff to revise and update the *Caltrans Noise Protocol*, which was published on May 2011.

Development of Quiet Pavement Technologies (2007 to present). Mr. Buehler has managed several projects for Caltrans related to the development of quiet pavement technologies. This includes a project to develop a pavement impedance tube for evaluating the acoustical properties of various pavements types relative to the noise-reducing characteristics of the pavement. Another project involved the measurement of pavement characteristics using on-board sound intensity measurements. The measurements were used to characterize the noise levels produced by a wide variety of pavement types used throughout California. Another project involved the measurement of long-term noise-reducing characteristics at a section of quiet pavement installed along a major interstate route.

Development of Hydroacoustic Impact Criteria for Pile Driving (2004 to present). Mr. Buehler coordinated a multiple agency effort aimed at developing interim impact criteria relating to the effects of underwater pile driving noise on fish. Through this effort, he worked closely with staff from state transportation agencies, resources agencies, and FHWA to review and evaluate relevant data and research. This effort cumulated in multi-agency agreement entitled Agreement in Principal for Interim Criteria for Injury to Fish from Pile Driving. For this effort, Mr. Buehler (and other participants in the effort) was awarded FHWA's Environmental Excellence Award for Exemplary Achievement in Ecosystems, Habitat, and Wildlife. Mr. Buehler was also invited by Mark Ferroni (FHWA's noise team leader) to chair a session at the 2010

Transportation Research Board Annual meeting in Washington, D.C., on the subject of pile driving impacts on fish.

Highway Traffic Noise Studies (1990 to present.) Mr. Buehler conducted numerous highway traffic noise studies over the last 20 years under the requirements of the FHWA traffic noise regulation (23CFR772). These projects have typically involved conducting field noise studies to characterized existing noise conditions, traffic noise modeling using FHWA-approved noise models, noise abatement analysis, and noise study report preparation. Projects include the I-80 Capacity Improvement Project in Roseville, CA; the SR 49 Widening Project in Nevada County, CA; the SR 4 East Widening Project in Contra Costa County, CA: Harbor Boulevard/U.S. 50 Interchange Project in West Sacramento, CA; I-5 Widening Project in Redding, CA; the I-5 Widening Project in Stockton, CA; the U.S. 50 HOV Lane Project in El Dorado County, CA; and the U.S. 50 Auxiliary Lane Project in Placerville, CA.

On-Call Noise and Vibration Services, Caltrans, California (1998 to present). Mr. Buehler managed four consecutive, multi-year, on-call contract with Caltrans to provide highway noise and vibration consulting services. Under these contracts, Mr. Buehler has managed over 80 task orders covering a wide variety of projects including project level noise studies, special noise and vibration studies, training development and implementation, guidance manual development, best practice development, and policy development.

Expert Witness Services (1999-2009)
Mr. Buehler was retained by Caltrans to serve as an expert witness services in an inverse condemnation lawsuit between Trident Properties and Caltrans. Trident Properties claimed that modification of I-5 near an apartment complex they own was devalued as a result of increased project-related traffic noise. He reviewed project materials and testified at the jury trial on issues related to traffic noise. Mr. Buehler was retained as an expert witness by Caltrans to provide technical expertise relating to a highway widening project in Susanville, California. A commercial property owner along the highway claimed that widening of the highway resulted in increased levels of noise and vibration in his office building. Mr. Buehler conducted noise and vibration testing in the office and prepared a detailed expert report that showed that noise and vibration levels were within accepted standards. Mr. Buehler was retained as an expert by the developer of the SR-125 South Bay Expressway project. The contractor for the SR-125 toll road project made change order claims against the project developer for unforeseen costs associated with noise barriers. Mr. Buehler reviewed project materials and testified before the project arbitration panel.

Publications

Caltrans Transportation- and Construction-Induced Vibration Guidance Manual. June 2004

Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish. February 2009.

Presentations

Transportation Research Board Committee on Transportation-Related Noise and Vibration 2010 Annual Meeting. January 2010. Washington, D.C. Session Co-Chair for Hydroacoustics: The Effects and Mitigation of Construction Sound on Fish and Wildlife. Presentation: "Overview of Pile Driving Impacts on Fish, Current Interim Impact Criteria, and the Caltrans Guidance Manual."

Transportation Research Board Committee on Transportation-Related Noise and Vibration 2009 Annual Summer Meeting. July 2009. Dayton, Ohio. "Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish."

The California Society for Ecological Restoration 16th Annual Conference. Folsom, California. May 2009. "Noise Considerations for Habitat Restoration Projects."

Transportation Research Board Committee on Transportation-Related Noise and Vibration 2008 Annual Summer Meeting. July 2008. Key West, Florida. "Highway Traffic Noise Lawsuit Against the State of California-A Lesson on the Importance of Good Writing in Noise Study Reports and Environmental Documents"

61st Annual Road Builders' Clinic, Coeur d'Alene, Idaho. March 2007. "Pile Driving in Water – Meeting Environmental Commitments."

Transportation Research Board Committee on Transportation-Related Noise and Vibration 2006 Annual Summer Meeting. July 2006. Williamsburg, VA. "Development of Guidance on the Effects of Pile Driving on Fish. "

Transportation Research Board Committee on Transportation-Related Noise and Vibration 199 Annual Summer Meeting. July 1999. San Diego, CA. "The Relationship between Highway Noise Levels and Level of Service."

Years of Experience: 30

Areas of Expertise

- FHWA Noise Regulation 23CFR772 and Caltrans Traffic Noise Analysis Protocol
- Project level noise studies for highway projects requiring NEPA documentation
- Highway noise training development and implementation
- Highway noise policy development
- Noise and vibration guidance manual development
- Pile driving underwater noise analysis
- Project management and best practices development

Key Projects or Accomplishments

- Managed four consecutive, statewide on-call contracts with Caltrans to provide noise and vibration consulting services
- Development of Caltrans highway noise training program
- Update of the Caltrans Traffic Noise Analysis Protocol
- Development of guidance manuals on transportation noise and vibration
- Development of multi-agency agreement on pile driving noise impact criteria
- *Environmental Excellence Award* from FHWA for Exemplary Achievement in Ecosystems, Habitat and Wildlife, 2005
- Board-certified member, Institute of Noise Control Engineering