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**\*\* WARNING \*\* WARNING \*\* WARNING \*\* WARNING \*\***  
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April 3, 2006

04-Son-128-8.7/9.1  
04-2S9404  
ACSTP-4390(001)E

Addendum No. 2

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in SONOMA COUNTY IN GEYSERVILLE FROM 0.1 KM EAST OF RIVER LANE TO 0.1 KM WEST OF RIVER ROAD.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on April 11, 2006, instead of April 6, 2006.

This addendum is being issued to set a new bid opening date as shown herein and revise the Project Plans, the Notice to Contractors and Special Provisions, the Proposal and Contract, and provide a copy of the Information Handout (Supplement No. 2).

Project Plan Sheets 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 47, and 48 are revised. Half-sized copies of the revised sheets are attached for substitution for the like-numbered sheets.

Project Plan Sheet 48A is added. A half-sized copy of the added sheet is attached for addition to the project plans.

Project Plan Sheets 49 and 50 are deleted.

In the Special Provisions, Section 4, "BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES," is revised as attached.

In the Special Provisions, Section 5-1.16, "PROJECT INFORMATION," the third paragraph is revised as follows:

"Information included in the Information Handout provided to bidders and Contractors is as follows:

1. Final Foundation Recommendations (Revised) for Russian River Bridge (Bridge No. 20-0038) dated March 13, 2006.
2. Foundation Review – Russian River Bridge (Br No 20-0038) dated March 9, 2006.
3. Foundation Recommendations – Russian River Bridge (Br No 20-0038) dated March 7, 2006
4. Dewatering and Non-Stormwater Discharges Information
5. NOAA/NMFS Decision Letter dated March 3, 2006 (reference 151422SWR2006SR00127:WH) and Biological Assessment of March 2006
6. California Regional Quality Control Board – Order for Technically Conditioned Certification

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7. United States Army Corps of Engineers – Regional General Permit (RGP) No. 5 (File No. 30105N)
8. California Department of Fish and Game – 1602 Lake and Streambed Alteration Agreement, dated March 14, 2006 (Notification No. 1600-2006-0098-3).
9. Addendum to Final Foundation Recommendations – Russian River Bridge (Br No 20-0038) dated March 27, 2006."

In the Special Provisions, Section 5-1.22, "SOUND CONTROL REQUIREMENTS," is added as attached.

In the Special Provisions, Section 5-1.23, "HAZARDOUS MATERIAL, GENERAL," is added as attached.

In the Special Provisions, Section 5-1.24, "HEALTH, SAFETY AND WORK PLAN," is added as attached.

In the Special Provisions, Section 5-1.25, "ASBESTOS SURVEY," is added as attached.

In the Special Provisions, Section 8-1.03, "STATE-FURNISHED MATERIALS," is revised as attached.

In the Special Provisions, Section 8-2.02, "PRECAST CONCRETE QUALITY CONTROL," subsection "PRECAST CONCRETE QUALITY CONTROL PLAN," the second paragraph is revised as follows:

"The Engineer shall have 2 weeks to review the PCQCP submittal after a complete plan has been received. No precasting shall be performed until the PCQCP is approved in writing by the Engineer."

In the Special Provisions, Section 8-2.02, "PRECAST CONCRETE QUALITY CONTROL," subsection "PRECAST CONCRETE QUALITY CONTROL PLAN," the fourth paragraph is revised as follows:

"An amended PCQCP or addendum shall be submitted to, and approved in writing by the Engineer, for any proposed revisions to the approved PCQCP. An amended PCQCP or addendum will be required for any revisions to the PCQCP, including but not limited to changes in concrete plants or source materials, changes in material testing procedures and testing labs, changes in procedures and equipment, changes in QC personnel, or updated systems for tracking and identifying precast elements. The Engineer shall have 1 week to complete the review of the amended PCQCP or addendum, once a complete submittal has been received. Work that is affected by any of the proposed revisions shall not be performed until the amended PCQCP or addendum has been approved."

In the Special Provisions, Section 8-2.02, "PRECAST CONCRETE QUALITY CONTROL," subsection "REPORTING," the fourth paragraph is revised as follows:

"The Engineer shall be notified immediately in writing when any precasting problems or deficiencies are discovered and also of the proposed repair or process changes required to correct them. The Engineer shall have 2 weeks to review these procedures. No remedial work shall begin until the Engineer approves these procedures in writing."

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In the Special Provisions, Section 8-3.01, "WELDING," subsection "WELDING QUALITY CONTROL," the eleventh paragraph is revised as follows:

"The Contractor shall allow the Engineer 1 week to review the WQCP submittal after a complete plan has been received. No welding shall be performed until the WQCP is approved in writing by the Engineer. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications."

In the Special Provisions, Section 10-1.01, "ORDER OF WORK," is revised as attached.

In the Special Provisions, Section 10-1.07, "DEWATERING AND NON-STORM WATER DISCHARGE CONTROL," is revised as attached.

In the Special Provisions, Section 10-1.08, "COOPERATION," the following paragraph is added after the second paragraph:

"It is anticipated that work by another contractor to install utilities on or near the Russian River Bridge may be in progress adjacent to or within the limits of this project during progress of the work on this contract."

In the Special Provisions, Section 10-1.18, "EXISTING HIGHWAY FACILITIES," the second paragraph is deleted.

In the Special Provisions, Section 10-1.18, "EXISTING HIGHWAY FACILITIES," the subsection "SALVAGE WORK TRESTLE," is added prior to subsection "REMOVE METAL BEAM GUARD RAILING," as follows:

**"SALVAGE WORK TRESTLE**

The Contractor shall salvage the work trestle that runs parallel with the existing bridge. Salvage work trestle will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications."

In the Special Provisions, Section 10-1.18, "EXISTING HIGHWAY FACILITIES," subsection "REMOVE TEMPORARY CONSTRUCTION ROADWAY," is revised as follows:

**"REMOVE TEMPORARY CONSTRUCTION ROADWAY**

Existing temporary construction roadway, including temporary fabric, where shown on the plans to be removed, shall be removed and disposed of when no longer required as determined by the Engineer. Remove temporary construction roadway shall include restoring the river bed and river bank to conditions consistent with the surrounding natural areas."

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In the Special Provisions, Section 10-1.27, "PILING," subsection "GENERAL," the third paragraph is revised as follows:

"All pile driving shall have a digital record of each pile strike per NOAA/NMFS requirements, including:

1. Pile number
2. Pile size and type
3. Hammer size and type
4. Distance to wetted channel area (if outside area through which flow always passes)
5. Water depth (if in wetted channel area through which flow always passes)
6. Date and time of installation
7. Start and stop time
8. Energy imparted to pile, and
9. Number of strikes"

In the Special Provisions, Section 10-1.27, "PILING," subsection "GENERAL," the eleventh paragraph is revised as follows:

"Groundwater and river elevations vary seasonally."

In the Special Provisions, Section 10-1.27, "PILING," subsection "GENERAL," the following paragraphs are added after the eleventh paragraph:

"The piles of the existing abutment will not be completely removed by demolition. Therefore, pile obstructions at the abutments should be anticipated during installation of new piles. The Contractor shall verify the elevation and location of the existing piles.

Anchor piles which are not to be incorporated in the completed structure shall be removed in conformance with the provisions in Section 15-4.02, "Removal Methods," and the remaining holes shall be backfilled with earth or other suitable material approved by the Engineer.

Holes shall be predrilled through concrete seal courses for the installation of steel pipe piles at the locations shown on the plans.

Drilling through the concrete seal course shall be done in a manner which preserves as much as possible the bottom area of the seal course. Drilling methods and equipment shall be approved by the Engineer before starting the predrilling.

Prior to the initial cleanout of the first pile and seal course placement that is installed over water, the work shall be witnessed by the Engineer to make sure that the plug is maintained and not disturbed. The Contractor shall notify the Engineer in writing not less than 3 calendar days prior to the initial cleanout of the first pile over water."

In the Special Provisions, Section 10-1.27, "PILING," subsection "GENERAL," the following subsection "Predrilled Holes," is added after the subsection "Jetting and Drilling":

**"Predrilled Holes**

Piles shall be driven in oversized drilled holes in conformance with the provisions in Section 49-1.06, "Predrilled Holes," of the Standard Specifications at the abutments and at Bents 9 and 10.

At Abutment 11, predrilling to elevation 52.5 meters or to existing pile tip elevations as verified by the Contractor is anticipated to facilitate advancing the piles through the existing piles at the abutment.

Predrilling will not be allowed below the scour and/or liquefaction elevations, whichever is deeper."

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In the Special Provisions, Section 10-1.27, "PILING," subsection "GENERAL," the subsection "Load Test Piles," is revised as follows:

**"Load Test Piles**

The Contractor shall notify the Engineer, in writing, not less than 10 days in advance of drilling or driving the piles to be load tested.

Before the remaining piles are spliced to length or driven, load testing of the load test pile either at Abutment 11 or Bent 8 as shown on the plans shall be completed:

The bottom of footing excavation shall be dewatered and made level before pile load testing. The excavation shall be kept dewatered during load testing.

Unless otherwise specified or shown on the plans, steel plates welded to the load test and anchor piling shall conform to the requirements in ASTM Designation: A 709/A 709M, Grade 36 [250], and shall be welded to the piling in conformance with the requirements in AWS D1.1.

Pipe, couplings and fittings shall be commercially available materials of the types and ratings shown on the plans."

In the Special Provisions, Section 10-1.27, "PILING," subsection "MEASUREMENT AND PAYMENT (PILING)," the following paragraphs are added after the fourth paragraph:

"Anchor piles that do not become part of the completed structure, or as shown on the plans or as specified, will be paid for at the contract unit price paid for drive State-furnished cast-in-steel-shell concrete pile (1220 mm).

Full compensation for removing and disposing of the anchor piles that do not become part of completed structure, and backfilling the remaining holes with earth or other suitable material will be paid for at the contract unit price paid for drive State-furnished cast-in-steel-shell concrete pile (1220 mm) and no additional compensation will be allowed therefor.

Full compensation for drilling holes and disposing of material resulting from drilling through concrete seal courses inside of the isolation casings shall be considered as included in the contract price paid per unit for drive State-furnished cast-in-steel-shell concrete pile (1220 mm), and no additional compensation will be allowed therefor.

Full compensation for compliance with the rules, regulations, and conditions that may govern the Contractor's operations in the areas, and requirements as noted shall be considered as included in the unit price paid for drive State-furnished cast-in-steel-shell concrete pile (1220 mm) and no additional compensation will be allowed therefor."

In the Special Provisions, Section 10-1.27, "PILING," subsection "MEASUREMENT AND PAYMENT (PILING)," the ninth paragraph is revised as follows:

"Full compensation for redriving monitored piles, for dewatering during monitoring, and for installing and removing the instruments from the pile, shall be considered as included in the contract unit price paid for drive State-furnished cast-in-steel-shell concrete pile (1220 mm), and no separate payment will be made therefor. The contract unit price paid for drive State-furnished cast-in-steel-shell concrete pile (1220 mm) shall include the monitored piles that are redriven."

In the Special Provisions, Section 10-1.27A, "SOUND ATTENUATION SYSTEM," is added as attached.

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In the Special Provisions, Section 10-1.29, "CONCRETE STRUCTURES," the subsection "SLIDING BEARINGS," is added prior to subsection "ELASTOMERIC BEARING PADS," as follows:

**"SLIDING BEARINGS**

Sliding bearings consisting of elastomeric bearing pads lubricated with grease and covered with sheet metal shall conform to the following requirements:

- A. Grease shall conform to the requirements of Military Specification: MIL-S-8660. A uniform film of grease shall be applied to the upper surface of the pads prior to placing the sheet metal.
- B. Sheet metal shall be commercial quality galvanized sheet steel. The sheet metal shall be smooth and free of kinks, bends, or burrs.
- C. Construction methods and procedures shall prevent grout or concrete seepage into the sliding bearing assembly."

In the Special Provisions, Section 10-1.29, "CONCRETE STRUCTURES," the subsection "FALSEWORK," is added prior to subsection "MEASUREMENT AND PAYMENT," as follows:

**"FALSEWORK**

Falsework shall conform to the provisions in Section 51, "Concrete Structures," of the Standard Specifications and these special provisions.

**Welding and Nondestructive Testing**

Welding of steel members, except for previously welded splices and except for when fillet welds are used where load demands are less than or equal to 175 N/mm for each 3 mm of fillet weld, shall conform to AWS D1.1 or other recognized welding standard. The welding standard to be utilized shall be specified by the Contractor on the working drawings. Previously welded splices for falsework members are defined as splices made prior to the member being shipped to the project site.

Splices made by field welding of steel beams at the project site shall undergo nondestructive testing (NDT). At the option of the Contractor, either ultrasonic testing (UT) or radiographic testing (RT) shall be used as the method of NDT for each field weld and any repair made to a previously welded splice in a steel beam. Testing shall be performed at locations selected by the Contractor. The length of a splice weld where NDT is to be performed, shall be a cumulative weld length equal to 25 percent of the original splice weld length. The cover pass shall be ground smooth at the locations to be tested. The acceptance criteria shall conform to the requirements of AWS D1.1, Section 6, for cyclically loaded nontubular connections subject to tensile stress. If repairs are required in a portion of the weld, additional NDT shall be performed on the repaired sections. The NDT method chosen shall be used for an entire splice evaluation including any required repairs.

For all field welded splices, the Contractor shall furnish to the Engineer a letter of certification which certifies that all welding and NDT, including visual inspection, are in conformance with the specifications and the welding standard shown on the approved working drawings. This letter of certification shall be signed by an engineer who is registered as a Civil Engineer in the State of California and shall be provided prior to placing any concrete for which the falsework is being erected to support.

For previously welded splices, the Contractor shall determine and perform all necessary testing and inspection required to certify the ability of the falsework members to sustain the stresses required by the falsework design. This welding certification shall be in writing, shall be signed by an engineer who is registered as a Civil Engineer in the State of California, and shall be provided prior to placing any concrete for which the falsework is being erected to support.

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The Contractor's engineer who signs the falsework drawings shall also certify in writing that the falsework is constructed in conformance with the approved drawings and the contract specifications prior to placing concrete. This certification shall include performing any testing necessary to verify the ability of the falsework members to sustain the stresses required by the falsework design. The engineer who signs the drawings may designate a representative to perform this certification. Where falsework contains openings for railroads, vehicular traffic, or pedestrians, the designated representative shall be qualified to perform this work, shall have at least three years of combined experience in falsework design or supervising falsework construction, and shall be registered as a Civil Engineer in the State of California. For other falsework, the designated representative shall be qualified to perform this work and shall have at least three years of combined experience in falsework design or supervising falsework construction. The Contractor shall certify the experience of the designated representative in writing and provide supporting documentation demonstrating the required experience if requested by the Engineer."

In the Special Provisions, Section 10-1.31, "REINFORCEMENT," the fourth paragraph is revised as follows:

"At the option of the Contractor, sample splices for longitudinal reinforcing bars in piles shall be either 1) removed from the completed lot, or 2) prepared in the same manner as specified in Section 52-1.08C(2)(a) "Production Test Requirements for Service Splices," of the Standard Specifications. Testing for longitudinal reinforcing bars in piles shall conform to Section 52-1.08, "Splicing," of the Standard Specifications."

In the Special Provisions, Section 10-1.36, "METAL BRIDGE RAILING," is deleted.

In the Special Provisions, Section 10-1.38, "CONCRETE BARRIER," is revised as attached.

In the Proposal and Contract, the Engineer's Estimate Items 31, 34, 39, 43, 45, are revised, Items 53, 54, and 55 are added and Items 46, 49, 52 are deleted as attached.

To Proposal and Contract book holders:

Replace pages 4 and 5 of the Engineer's Estimate in the Proposal with the attached revised pages 4 and 5 and add 5A of the Engineer's Estimate. The revised Engineer's Estimate is to be used in the bid.

Attached is a copy of the Information Handout (Supplement No. 2).

Inquiries or questions in regard to this addendum must be communicated as a bidder inquiry and must be made as noted in the NOTICE TO CONTRACTORS section of the Notice to Contractors and Special Provisions.

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the proposal.

Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

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This office is sending this addendum by UPS overnight mail to Proposal and Contract book holders to ensure that each receives it. A copy of this addendum and the modified wage rates are available for the contractor's use on the Internet Site:

**[http://www.dot.ca.gov/hq/esc/oe/weekly\\_ads/addendum\\_page.html](http://www.dot.ca.gov/hq/esc/oe/weekly_ads/addendum_page.html)**

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

REBECCA D. HARNAGEL, Chief  
Office of Plans, Specifications & Estimates  
Office Engineer

Attachments

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

Attention is directed to the provisions in Section 8-1.03, "Beginning of Work," in Section 8-1.06, "Time of Completion," and in Section 8-1.07, "Liquidated Damages," of the Standard Specifications and these special provisions.

The 72 hours advance notice before beginning work as referred to in Section 8-1.03, "Beginning of Work," of the Standard Specifications is changed to 24 hours advance notice for this project.

A working day as defined in Section 8-1.06 is re-defined for this project. The second through the fifth paragraphs, inclusive, of Section 8-1.06 shall not apply.

The work shall be completed in the following three phases:

Phase I shall include time for mobilization, submittal reviews and approvals, and material procurement.

Phase II shall consist of completing the replacement bridge so that it may be opened to vehicular, pedestrian, and bicycle traffic.

Phase III shall consist of all remaining work.

Phase I work shall begin at 12:01 a.m. on the **FIRST WORKING DAY AFTER CONTRACT AWARD**.

Phase II work shall be diligently prosecuted to completion before the expiration of the **NUMBER OF WORKING DAYS BID**, beginning at 12:01 a.m. on April 15, 2006. Phase II shall expire on the day the bridge and roadway approaches are opened to vehicular, pedestrian, and bicycle traffic. After completing Phase II, no full bridge or roadway closures will be allowed.

Phase III work shall begin at 12:01 a.m. on the day after the bridge and roadway approaches are opened to vehicular, pedestrian, and bicycle traffic on the new bridge. If the permanent alignment is not used for the initial traffic opening, vehicular lane widths shall be 3.6 meters and pedestrian and bicycle lane width shall be at least 1.5 meters. Pedestrian and bicycle traffic shall be separated from vehicular traffic and the outside edge of the bridge by temporary railing (Type K) with temporary traffic screen. During Phase III work, one way traffic control may be used Monday through Friday to complete the remaining work, provided that traffic is delayed no more than five minutes. If the bridge and roadway are opened prior to completion of all permanent work, the Contractor shall bear the entire cost for a temporary traffic opening including but not limited to installation, maintenance and removal of temporary railing (Type K), temporary traffic screen, temporary crash cushions, pavement conforms, temporary pavement delineation, traffic control and 100% of flagging costs.

All three phases of work shall be completed within **225 WORKING DAYS**.

The Contractor shall pay the State of California the sum of \$32,000 per day as liquidated damages, for each and every calendar day's delay in finishing the work in Phase II in excess of the working days bid for completion of Phase II.

The Contractor shall pay the State of California the sum of \$14,300 per day as liquidated damages, for each and every calendar day's delay in finishing the contract work in all three phases in excess of 225 working days.

The time limit specified for the completion of the work contemplated herein is considered insufficient to permit completion of the work by the Contractor working a normal number of hours per day or week on a single shift basis. Should the Contractor fail to maintain the progress of the work in conformance with "Progress Schedule (Critical Path Method)" of these special provisions, additional shifts will be required to the extent necessary to ensure that the progress conforms to the above mentioned schedule and that the work will be completed within the time limit specified.

Full compensation for any additional costs occasioned by compliance with the provisions in this section shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefor.

### 5-1.22 SOUND CONTROL REQUIREMENTS

Sound control shall conform to these special provisions.

The noise level from the Contractor's operations, between the hours of 9:00 p.m. and 6:00 a.m., shall not exceed 86 dBa (Lmax) at a distance of 15 m.

Operations expected, but not limited to exceed 86 dBa (Lmax) at a distance of 15 m include the following:

1. Pile load test
2. Pile driving
3. Cold plane asphalt concrete pavement.

The Contractor shall provide one "Type 1" sound level meter and one acoustic calibrator which will be used by the Department during the life of the contract. The Contractor shall provide training by a person trained in noise monitoring to one Department employee designated by the Engineer. The sound level meter shall be calibrated and certified by the manufacturer or other independent acoustical laboratory prior to delivery to the Department. The Contractor shall provide annual recalibration by the manufacturer or other independent acoustical laboratory. All equipment shall be capable of taking measurements using the A-weighting network and the "slow" response of the sound level meter. The measurement microphone shall be fitted with an appropriate windscreen. All equipment shall be returned to the Contractor at the acceptance of the contract. Equipment damaged by actions of the Department or the public shall be paid for as extra work as provided in Section 4-1.03D for the Standard Specifications.

Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without the muffler.

The noise level requirement shall apply to the equipment on the job or related to the job, including but not limited to trucks, transit mixers or transient equipment that may or may not be owned by the Contractor. The use of loud sound signals shall be avoided in favor of light warnings except those required by safety laws for the protection of personnel.

Full compensation for conforming to the requirements of this section shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

### **5-1.23 HAZARDOUS MATERIAL, GENERAL**

Hazardous material is defined as a substance or waste that, because of its physical, chemical, or other characteristics, may pose a risk of endangering human health or safety or of degrading the environment. Hazardous material includes, but is not limited to, all of the following:

- A. A hazardous substance, as defined in California Health and Safety Code Section 25281 or Section 25316.
- B. A hazardous waste, as defined in California Health and Safety Code Section 25117.
- C. A waste, as defined in Section 470 or as defined in Section 13050 of the California Water Code.

Hazardous material is present within the project limits. Construction work performed in locations known to contain hazardous material shall be performed in accordance with the Health, Safety and Work Plan.

Asbestos has been found inside the concrete used to construct the deck and columns of the Russian River Bridge. The percent asbestos in this concrete, by area point count, has been reported to range from less than 0.25 to 0.75.

The environmental professional(s) who conducted the site investigation(s) and prepared the aforementioned report(s) performed this work in accordance with standard industry practices. The State does not guarantee that these investigations and reports have completely quantified all the hazardous material within the project limits. The Contractor's attention is directed to Section 5-1.116 "Differing Site Conditions" of the Standard Specifications.

The Contractor's attention is directed to the "Health, Safety and Work Plan" and "Asbestos Survey" of these special provisions.

The Contractor shall develop and implement a program, which is part of the Contractor's Code of Safe Practices, to inform employees, contractors, subcontractors and State employees of the nature, level, and degree of exposure likely as a result of participation in or adjacent to operations that involve hazardous material.

The Engineer will obtain the Cal-EPA Generator Identification Number required for the disposal of any hazardous waste generated by the State. The Engineer will sign all manifests for hazardous material generated by the State. The Contractor shall notify the Engineer five days before the manifests are to be signed. The Department will have a representative on site to sign the manifests when the hazardous material is ready for transport to a disposal or recycling facility.

The Contractor shall have a water truck available at all times while excavating, drilling, performing earthwork, and grubbing activities in areas containing hazardous material.

### **APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS**

Excavation, removal, drilling, blasting, transportation, storage and disposal of hazardous material shall be in accordance with the applicable or relevant and appropriate requirements (ARARs) of, but not limited to, the following agencies:

- A. United States Department of Transportation (USDOT)
- B. United States Environmental Protection Agency (EPA)
- C. California Department of Health Services (DHS)
- D. California Environmental Protection Agency (Cal-EPA)
- E. California Air Resources Board (ARB)
- F. California Department of Pesticide Regulation (DPR)
- G. California Department of Toxic Substance Control, Northern Region (DTSC)
- H. California Integrated Waste Management Board (CIWMB)
- I. California Office of Environmental Health Hazard Assessment (OEHHA)
- J. California State Water Resources Control Board (SWRCB)
- K. San Francisco Bay Regional Water Quality Control Board (RWQCB)
- L. Bay Area Air Quality Management District (BAAQMD)
- M. California Division of Occupational Safety and Health Administration (Cal-OSHA)

In the event that multiple ARARs are available for the work items involved with this project and in the event that these ARARs conflict with one another the Contractor shall apply the more stringent ARAR to this project.

## **PERMITS AND LICENSES**

The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including registration for transporting vehicles carrying the hazardous material. The California Environmental Quality Act (CEQA) of 1970 (Chapter 1433, Stats. 1970), as amended may be applicable to permits, licenses and authorizations which the Contractor shall obtain from all agencies in connection with performing the work of the contract. The Contractor shall comply with the provisions of said statutes in obtaining such permits, licenses and other authorizations.

## **TRAINING**

Prior to performing any work at locations containing hazardous material all personnel shall complete a safety-training program which meets 29 CFR 1910.120 and 8 CCR 5192 covering the potential hazards as identified.

## **PERSONAL PROTECTIVE EQUIPMENT**

Prior to performing any work at locations containing hazardous material the Contractor shall provide any personal protective equipment (PPE) required by the Contractor's Health, Safety and Work Plan to State Personnel. The number of State personnel requiring PPE will be 2.

## **TRANSPORTATION**

The Contractor shall keep a daily written record of the movement of all hazardous material. This daily written record shall include maps of all of the stockpile(s) of hazardous material. These maps shall include information on where the material found in each stockpile originated. The Contractor shall keep a written record where each stockpile of hazardous material was ultimately disposed of or recycled. This written record shall include the truck numbers and manifest numbers that represent the material from each stockpile.

Hazardous material shall be transferred directly from the excavation to a registered transport vehicle, a storage container approved for transport of hazardous waste by the United States Department of Transportation, or a stockpile location approved by the Engineer.

All hazardous material on the exteriors of the transport vehicles shall be removed and placed either into the current transport vehicle or into the excavation prior to the vehicle leaving the exclusion zone. No hazardous material shall be deposited on public roads. The Contractor shall indemnify the State from any costs due to spillage during the transport of hazardous material to the disposal facility.

## **MEASUREMENT AND PAYMENT**

Full compensation for conforming to the requirements of this section shall be considered as included in the contract price paid for the various items of work involved and no additional compensation will be allowed therefor.

#### **5-1.24 HEALTH, SAFETY AND WORK PLAN**

This work shall consist of preparing and maintaining a detailed Health, Safety and Work Plan (HSWP) for all site personnel in accordance with United States Environmental Protection Agency, California Department of Toxic Substances Control and California Division of Occupation Safety and Health Administration regulations. The Contractor shall keep the HSWP on site at all times.

Attention is directed to "Hazardous Material, General" of these special provisions.

An industrial hygienist who has been certified by the American Board of Industrial Hygiene must approve the final HSWP. The certified industrial hygienist (CIH) who approves the HSWP shall remain in good standing with the American Board of Industrial Hygiene for the duration of the work. The Department will not accept a HSWP approved by a CIH who is not in good standing with the American Board of Industrial Hygiene.

Prior to beginning any work at the site, the HSWP must be accepted by the Engineer. Three copies of the draft HSWP shall be submitted to the Engineer for review and acceptance. The Contractor shall allow 2 working days for the Department to review the HSWP. If revisions are required, as determined by the Engineer, the Contractor shall revise and resubmit the HSWP within 2 working days. The Contractor shall allow 2 working days for the Department to review subsequent drafts of the HSWP.

Six copies of the final HSWP shall be submitted to the Engineer.

The Contractor's attention is directed to the California Code of Regulations, Title 8, Section 5192 for the elements required in the HSWP. The Contractor's attention is also directed to the Occupational Safety and Health Guidance Manual published by National Institute of Occupational Safety and Health (NIOSH) for elements of the HSWP.

The HSWP shall at a minimum include, but not be limited to, the following items:

- A. Site worker organizational structure with the names of key site personnel
- B. Site hazard communication program
- C. Description of the anticipated site activities on a task by task basis
- D. Safety and health risk analysis of each task that involves working with or adjacent to hazardous material
- E. Standard operating procedures of each site task
- F. Employee training requirements for each site task that involves working with or adjacent to hazardous material
- G. Personal protective equipment to be used by site workers for each task
- H. Medical surveillance requirements for each site worker
- I. Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment to be used
- J. Site control measures to control employee, state employee and public exposure to hazardous material prior to and during site operations
- K. Decontamination procedures
- L. Emergency response plan
- M. Confined space entry procedures
- N. Spill containment program
- O. Site sanitation facilities

The decontamination area shall be located outside of the exclusion zone. Water from decontamination procedures shall be collected and disposed of at an appropriate disposal site by the Contractor. Non-reusable protective equipment, once used by any personnel, including State personnel, shall be collected and disposed of at an appropriate disposal site by the Contractor. Temporary 6-foot chain link security fence shall be installed to surround and secure the exclusion zone.

Monitoring and exposure standards for work associated with asbestos-containing material shall be based on Construction Standards of Title 8, California Code of Regulations, Construction Safety Orders, Section 1529, "Asbestos." The HSWP shall at a minimum contain a description of activities that disturb asbestos-containing material, describe specific engineering controls to be employed to achieve compliance with the applicable or relevant and appropriate requirements, employee exposure monitoring, regulated asbestos-containing material removal and abatement plan, and other relevant information. Full compensation for conforming to the requirements of this section shall be considered as included in the contract price paid for the various items of work involved and no additional compensation will be allowed therefor.

### **5-1.25 ASBESTOS SURVEY**

The Contractor shall be OSHA-certified and AHERA (Asbestos Hazard Emergency Response Act)-trained to perform an asbestos survey prior to any demolition activity. The sampling investigation shall be consistent with the USEPA Asbestos/NESHAP Regulated Asbestos-Containing Materials Guidance. Any exposed asbestos-containing material (ACM) on the existing structure shall be sampled. Concrete shall be sampled and tested prior to demolition. The Contractor shall prepare a sampling work plan for the sampling and handling of asbestos containing material. The sampling work plan shall meet USEPA, SW846, "Test Methods for Evaluating Solid Waste," Volume II: Field Manual, Physical/Chemical, Chapter Nine Section 9.1. The sampling work plan shall be submitted at least 1 working day prior to beginning asbestos removal work for review and approval by the Engineer. The Contractor shall allow 2 working days for the Department to review the sampling work plan. If revisions are required, as determined by the Engineer, the Contractor shall revise and resubmit the sampling work plan within 2 working days. The Contractor shall allow 2 working days for the Department to review subsequent drafts of the sampling work plan.

A minimum of one sample shall be taken per suspected ACM. For pipes and other linear components of suspected ACM, one sample shall be taken per 1.5 meters of exposed material. Samples shall be analyzed for asbestos by a laboratory certified by the Department of Health Services, according to the method specified in 40 Code of Federal Regulations (CFR) Part 763 Subpart F, Appendix A (Polarized Light Microscopy). Samples shall be transported to the laboratory within 24 hours of sampling. The laboratory shall run analytical tests on a 48-hour turnaround. Laboratory results shall be sent by facsimile or hand delivered to the Engineer as soon as they are available. A summary report of sampling protocols, chain of custody, analysis and laboratory data sheets shall be supplied to the Engineer within 15 days of completion of sampling.

Full compensation for conforming to the requirements of this section shall be considered as included in the contract price paid for the various items of work involved and no additional compensation will be allowed therefor.

**8-1.03 STATE-FURNISHED MATERIALS**

Attention is directed to Section 6-1.02, "State-Furnished Materials," of the Standard Specifications and these special provisions.

Attention is directed to "Piling," of these special provisions.

Steel pipe piling will be furnished to the Contractor. A portion, 158.5 meters {520 linear feet}, is available upon contract award. The remaining 908.5 meters {2980 linear feet} is being fabricated. Piling conforms to the diameter and wall thickness shown on the plans.

Piling will be available to the Contractor at the following location and in the following increments:

XKT Engineering, Incorporated  
 Building 390  
 Mare Island, CA 94592  
 Project Manager - Phone: (707) 562-2500, ext. 14)

Pile Availability	Total Approximate Quantity meters {linear feet}	Conforms to "Buy America" Requirements {Each piece = 12.2 meters {40 lf}+/-}	Does not meet "Buy America" Requirements
Available Upon Contract Award	158.5 meters {520 lf}	8 pieces 97.6 meters {320 lf}	5 pieces 61.0 meters {200 lf}
Anticipated Availability Date May 1, 2006	121.9 meters {400 lf}	10 pieces 121.9 meters {400 lf}	None
Anticipated Availability Date May 15, 2006	280.4 meters {920 lf}	23 pieces 280.4 meters {920 lf}	None
Anticipated Availability Date June 5, 2006	268.2 meters {880 lf}	22 pieces 268.2 meters {880 lf}	None
Anticipated Availability Date June 20, 2006	237.7 meters {780 lf}	19.5 pieces 237.7 meters {780 lf}	None

The portion of the piling that is available at contract award conforms to API 5L-X42 and to the provisions of "Steel Pipe Piling" of these special provisions. Pile lengths are 12.2 meters {40 foot} with no circumferential welds and straight longitudinal welds. The Contractor shall notify the Engineer and the Project Manager at XKT Engineering, Incorporated at least 2 business days before this piling is to be picked up by the Contractor.

Piling that does not meet the "Buy America" requirements specified elsewhere in these special provisions shall be used for anchor piles that do not become part of the completed structure.

The portion of the piling that is being fabricated will conform to ASTM 252, Grade 3 and to the provisions of "Steel Pipe Piling" of these special provisions. Pile lengths will be 12.2 meters {40 foot} with circumferential welds every 3.05 meters {10 feet} and straight longitudinal welds.

The Contractor shall notify the Engineer and the Project Manager at XKT Engineering, Incorporated at least 2 business days before this piling is to be picked up by the Contractor.

### 10-1.01 ORDER OF WORK

Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the Standard Specifications and these special provisions.

Within 48 hours of notification to proceed by the Engineer, the Contractor shall provide written verification that all precast prestressed box beam girders have been ordered, including the available date for delivery of girders to the jobsite.

A first order of work is to fabricate additional load apparatus and perform structural steel modifications to existing State load test equipment to create a 2,000 ton +/- capacity pile load testing apparatus. Attention is directed to "Piling" of these special provisions.

A first order of work is to perform the pile load test.

As a first order of work, the Contractor shall submit complete working drawings for the precast prestressed concrete box beam girders.

Field operations shall not commence before April 15, 2006. The demolition of the existing Russian River Bridge is expected to be completed by May 5, 2006. The work trestle is expected to be available for exclusive use of the Contractor by May 5, 2006.

Prior to earthwork and pile installation, the Contractor shall submit to the Engineer a plan for dewatering at each abutment and bent location. Attention is directed to "Dewatering and Non-Storm Water Discharge Control" of these special provisions regarding conveyance, treatment, and disposal of dewatering discharges.

The Contractor may work in dry portions of the river bed. Construction Site Best Management Practices (BMPs) specific to operations in dry portions of the river bed shall be included in the Contractor's Storm Water Pollution Prevention Plan (SWPPP).

The Contractor shall give the Engineer 48 hours notice prior to installing piles or resuming pile installation operations at each and every pile location.

The Contractor shall drive piles outside of the wetted channel areas (through which flow always passes) [Wetted Channel Areas] prior to driving piles in the wetted channel areas.

When performing work, including substructure work, in wetted channel areas, the following additional conditions shall apply:

1. No falsework shall be installed in wetted channel areas.
2. Pile driving shall only be allowed between the hours of 8 a.m. and 4 p.m.
3. All piles shall first be vibrated, with a vibratory hammer, to refusal or to elevation 49.0 meters (as referenced from the bench mark, as shown on the Log of Test Borings plans) whichever is the higher elevation, then driven to tip elevation with an impact hammer.
4. When driving piles with an impact hammer, a sound attenuation system, approved by the Engineer, shall be used. Prior to driving piles in the wetted channel areas, anticipated to be, but not limited to, at Bents 4, 5 and 6, the Contractor shall submit to the Engineer a proposed plan for noise attenuation. The sound attenuation system shall consist of an air bubble curtain with a temporary isolation casing or a temporary isolation casing kept dry during driving.

Attention is directed to "Concrete Barriers," of these special provisions regarding constructing a 1.25 m by 1.25 m test panel prior to beginning work on architectural texture on the barrier

Attention is directed to "Environmentally Sensitive Area" and "Temporary Perimeter Fence (Type WM 1.8)" of these special provisions. Prior to beginning work, the boundaries of the Environmentally Sensitive Areas (ESA) shall be clearly delineated in the field. The boundaries shall be delineated by the installation of temporary perimeter fence (Type WM 1.8).

Attention is directed to "Water Pollution Control" of these special provisions regarding the submittal and approval of the Storm Water Pollution Prevention Plan prior to performing work having potential to cause water pollution.

Attention is directed to "Progress Schedule (Critical Path Method)" of these special provisions regarding the submittal of a general time-scaled logic diagram within 10 days after approval of the contract. The diagram shall be submitted prior to performing any work that may be affected by any proposed deviations to the construction staging of the project.

### **10-1.07 DEWATERING AND NON-STORM WATER DISCHARGE CONTROL**

Dewatering discharges shall include groundwater and surface water dewatered from isolation casings, piles driven inside and outside of the wetted channel areas (with flowing water), and structure excavations. Dewatering discharge control shall consist of collection, conveyance, treatment, and disposal of dewatering discharges.

Discharge of water collected from dewatering operations shall be in accordance with the "Disposal" section described elsewhere in this special provision.

Attention is directed to "Open-Ended Cast-In-Steel-Shell Piling" and "Isolation Casing" for disposal of materials excluding dewatering discharges, that result from cleaning out the piles and the isolation casings.

Discharges from dewatering operations shall conform to the requirements in Section 7-1.01G, "Water Pollution" of the Standard Specifications, "Water Pollution Control" of the special provisions, and these special provisions.

Any groundwater removed during dewatering of excavations or surface water removed during dewatering may only be discharged directly to the waters of the State, or to storm sewer system that discharges to a water of the State, if it meets the Water Quality Requirements described elsewhere in this special provision. Conformance with the requirements of this section shall in no way relieve the Contractor from the Contractor's responsibilities, as provided in Section 7-1.11, "Preservation of Property," and Section 7-1.12, "Responsibility for Damage," of the Standard Specifications.

The Contractor's attention is directed to the Dewatering and Non-storm Water Information Handout that is available at the Department of Transportation, Duty Senior Desk, 111 Grand Avenue, Oakland, CA 94623, e-mail: (510) 286-5209. The Dewatering and Non-storm Water Information Handout includes a sample Daily Inspection Report (DIR) described elsewhere in this special provision, and Off-site Disposal Facility information for dewatering discharges.

A copy of the Coverage under General National Pollutant Discharge Elimination System (NDPES)/Waste Discharge Requirements (WDRs) for Discharges of Ground Water to Surface Water Related to Construction Dewatering activities, Order 93-61, and Monitoring and Reporting Program No. R1-2006-0031 For the Geyserville Bridge Replacement Project, Route 128, Sonoma County, adopted by the North Coast Regional Water Quality Control Board is available at the Department of Transportation, Duty Senior Desk, 111 Grand Avenue, Oakland, CA 94623, e-mail: (510) 286-5209.

Attention is directed to "Erosion Control (Type D)" of these special provisions regarding the requirement to stabilize and restore all areas following removal of all facilities and equipment associated with dewatering and non-storm water discharges.

The Contractor shall be responsible for designing and constructing all temporary project and local dewatering systems which should conform to section 19.304 "Water Control and Foundation Treatment", of the Standard Specification, these special provisions, and as directed by the Engineer.

### **COLLECTION AND CONVEYENCE SYSTEM**

Dewatering discharges shall be collected, conveyed to and stored in the temporary holding tanks placed at the Construction work area for treatment to remove sediment.

The estimated flow rate for the dewatering discharges is 40,000 liters/day.

#### **Temporary Holding Tanks**

The Contractor shall use transportable closed top holding tanks of which a sufficient number shall be provided based on the following:

1. Anticipated flow rates,
2. Pumping rates,
3. Capacity inefficiencies due to sediment retention within the holding tanks,
4. Sediment settling rates, and
5. Anticipated water loss or reuse rates.
6. Available staging areas

The Contractor shall provide temporary holding tanks with a minimum number and holding capacity sufficient to handle the water removed from land-based dewatering operations, and prevent delay of work.

Each temporary holding tank shall have an inlet and outlet capable of receiving and discharging flows at the estimated flow rate provided in this section.

The Contractor shall maintain a minimum freeboard of 0.3-meter (one-foot) space in each of the temporary holding tanks at all times.

The Contractor shall clean the holding tanks when 25 percent of the tank's volume is filled with sediments.

### **Conveyance**

The Contractor shall be responsible for providing all pumps and piping required to convey the water to the temporary holding tank and to the point of discharge.

The Contractor shall use a flow meter, as described in "Flow Rate Monitoring" of this section, to measure all discharges from dewatering operations.

Materials shall conform to the provisions in Section 6, "Control of Materials," Section 7-1.16, "Contractor's Responsibility for the Work and Materials," and Section 74-2, "Drainage Pump Equipment" of the Standard Specifications and these special provisions.

### **TREATMENT SYSTEM FOR TURBIDITY**

A treatment system shall be provided to treat the dewatering discharges, within the temporary holding tanks, in accordance with "Water Quality Requirements" of this section.

Temporary holding tanks shall be used for sediment removal. Temporary holding tanks alone may not provide sufficient sediment removal to meet the water quality requirements for turbidity and the Contractor shall consider all treatment options necessary to comply with the Water Quality Requirements described elsewhere in this special provision.

Treatment system components shall include, but not be limited to, weir tanks, settling tanks, gravity bag filters, sand media filters, pressurized bag filters, cartridge filters, in-line flocculants, or a combination of these systems to provide adequate treatment and polishing.

Sediment removed during maintenance of the treatment system shall be removed in accordance with the manufacturers recommendations and shall be disposed of in accordance with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the standard Specifications.

The Contractor shall design and implement an appropriate treatment system for the site conditions and anticipated flow rate to achieve and maintain compliance with the specified "Water Quality Requirements."

The elements of the treatment system shall be sufficient to prevent the delay of work.

### **DISPOSAL**

Prior to disposal of water collected in the temporary holding tanks, Initial Monitoring as described elsewhere in this special provision shall be completed prior to disposal of dewatering discharges. The Contractor may choose to reuse the treated water for the pile cleanout operations, provided it meets the "Water Quality Requirements" of this section.

### **Russian River**

If Water Quality Measurements as described elsewhere in this special provision indicate an exceedance of the Water Quality Requirements, dewatering discharges to the Russian River will be terminated. The Contractor shall take corrective measures to modify the treatment system by adding on additional components as described in "Treatment System For Turbidity" and to manage exceedances due to any other constituent, to comply with the water quality requirements.

The discharge to the Russian River shall not cause erosion at the point of discharge nor result in negative impacts to aquatic vegetation or aquatic life forms.

The Contractor shall continue daily Water Quality Monitoring to ensure that the discharges are in accordance with the Water Quality Requirements as described elsewhere in this special provision, and shall complete the requirements in "Inspection, Monitoring and Reporting," of this special provision.

### **Off-site Disposal**

If Water Quality Measurements indicate that the treated water does not meet the Water Quality Requirements, the Contractor may choose to dispose the treated water at a licensed facility in accordance with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the standard Specifications. The Contractor shall submit to the Engineer the information on the volume of water disposed off-site. Attention is directed to the Dewatering and Non-storm Water Information Handout for information on off-site facilities. The Contractor shall submit to the Engineer the analysis results from any additional water quality monitoring required by the off-site facility.

## WATER QUALITY REQUIREMENTS

Water Quality Requirements include effluent limitations described in this section, and incorporates by reference the conditions and prohibitions in the General NPDES permit No. CA0024902, adopted by the North Coast Regional Water Quality Control Board.

Constituent	Effluent Limits
Turbidity (NTU)	Downstream turbidity < 50 NTU (when, Natural Background Turbidity < 50 NTU), or Downstream turbidity < 10% above natural background turbidity, when it is > 50 NTU
PH	Discharges shall have a pH in the range of 6.5 to 8.5
Dissolved Oxygen (DO)	Downstream DO > 5.0 mg/l

Receiving water measurements shall be taken at 30 m downstream of the discharge point.  
Natural Background measurements shall be taken at 30 m upstream of discharge point.

## INSPECTION, MONITORING, AND REPORTING REQUIREMENTS

The Contractor shall conduct daily visual inspection of the dewatering system, when in use, to ensure that the various components are functional. Components shall be routinely maintained or replaced to prevent leakage and to ensure efficient operation of the dewatering system.

The Contractor shall document the results of the daily visual inspection in a Daily Inspection Report (DIR) to be submitted to the Engineer upon request. The DIR form shall also include the Daily Monitoring Records that include flow rate monitoring and water quality monitoring data described elsewhere in this section. In developing the DIR, the Contractor may refer to forms found in the Dewatering and Non-storm Water Information Handout described elsewhere in this special provision and the Caltrans Construction Site Best Management Practices Manual, Section 7, NS-2, Dewatering Operations. The DIR form shall be approved by the Engineer prior to use.

All information and recorded data collected or submitted as part of the DIR shall be certified as true and accurate and signed by those who gather the information.

The DIR shall be provided weekly to the Engineer, or as directed by the Engineer.

### Visual Inspection

During each day of discharge, the Contractor shall perform daily inspection of the effluent from the holding tanks at the discharge site and shall include, in the DIR, observations of:

1. Date and Time.
2. Weather conditions,
3. Wind direction and velocity,
4. The presence or absence of water fowl or aquatic wildlife,
5. The color and clarity of the effluent discharge, and
6. Any erosion and/or ponding downstream of the discharge site.

The DIR shall include photographs of the discharge point and areas downstream of the discharge site. These photographs shall be labeled with the time, date, and location.

### Flow Rate Monitoring

A flow meter that has been approved by the Engineer for exclusive use in dewatering during construction shall be used to measure all water treatment discharges. All calibrations shall be done in conformance with the manufacturer's instructions in the presence of the Engineer.

For every day when dewatering is conducted, the Contractor shall record the flow-meter totalizer readings, compute average daily volumes. The Discharge Volume Records shall include the calibration logs for the flow meter and flow meter readings including the computed average daily volumes. The Discharge Volume Records shall be provided weekly to the Engineer, or as directed by the Engineer.

## **Water Quality Monitoring**

### **Initial Monitoring Report**

Sample(s) shall be collected once prior to discharge at mid depth of the temporary holding tank(s) and analyzed for the constituents listed in the "Wastewater" section Monitoring and Reporting Program No. R1-2006-0031 For Geyserville Bridge Replacement Project , Route 128, Sonoma County, available at the Duty Senior's Desk as described elsewhere in this special provision for the following constituents: Oil and Grease; Hydrocarbons as TPH-g, TPH-d and TPH-mo; Lead; Copper; Mercury (total); Bacteria/Coliform (total and fecal). The Contractor shall submit the results of analysis in a transmittal titled "Initial Monitoring Report" of the to the Engineer

### **Water Quality Measurements**

For all discharges to the Russian River, the Contractor shall conduct field measurements for the water quality parameters listed in the table under "Water Quality Requirements" of this special provision, and collect samples for laboratory analyses for constituents listed in the "Wastewater" section Monitoring and Reporting Program No. R1-2006-0031, as follows:

- A. Measurements shall be taken at the background and receiving water sampling locations a maximum of one hour prior to initiating the discharge to assess the relative conditions in the receiving water.
- B. Startup-phase sampling shall include effluent, background, and receiving water measurements taken during the first 3 days of discharge operation. Start-up phase sampling shall begin 10 to 30 minutes after initiating the discharge. Sampling shall be timed such that sampling events are equally dispersed throughout the duration of the discharge and so that a minimum of 4 sampling events are performed for each discharge lasting 4 hours or more. The time between sampling events shall not exceed 4 hours.
- C. Regular-phase sampling shall include effluent, background, and receiving water measurements that occur after the third day of operation. Regular-phase sampling shall occur a minimum of twice daily and the sampling shall be timed such that events are equally dispersed throughout the duration of the discharge.
- D. Additional effluent, background, and downstream measurements shall be taken whenever there is a noticeable effect on the color or clarity of the receiving water body, as directed by the Engineer.
- E. After each initial measurement that exceeds the water quality limitations, the Contractor shall confirm the exceedance by taking an additional measurement no less than 15 minutes and no more than 1 hour after the initial measurement.
- F. After each confirmed exceedance, the Contractor shall revert to the startup-phase sampling requirements before resuming the regular-phase sampling.

For discharges of less than 4 hours in duration, the Contractor shall measure the water quality parameters listed under "Water Quality Limitations" of this special provision as follows:

- A. Measurements shall be taken at the background and receiving water sampling locations a maximum of one hour prior to initiating the discharge to assess the relative conditions in the receiving water.
- B. Effluent, background, and receiving water measurements shall occur between 10 and 30 minutes after initiating discharge.
- C. Effluent, background, and receiving water measurements shall occur every hour thereafter.
- D. After each initial measurement that exceeds the water quality limitations, the Contractor shall confirm the exceedance by taking an additional measurement no more than 15 minutes after the initial measurement.

The effluent turbidity and pH shall be measured at the end of the outfall or at an inline sampling port in the outfall piping. The receiving water turbidity, pH, and dissolved oxygen shall be measured at a point 30 m downstream of the discharge point. The natural background turbidity, dissolved oxygen, and pH shall be measured at a location that is unaffected by the discharge, or other construction activity, 30 m upstream of the discharge.

The receiving water and natural background measurements shall be depth-averaged when the water depth is greater than 1.0 m. Depth-averaged measurements shall be obtained by taking measurements from 3 points within the water column and averaging the 3 measurements: one at 0.3 m below the surface, one at mid depth, and one at 0.3 m above the bottom. In receiving waters that are less than 1.0 meter in depth, only one measurement shall be taken at 0.3 m below the surface.

All field-recorded data shall be obtained using measuring instruments approved by the Engineer and recorded in the presence of the Engineer. The Contractor shall submit a copy of the manufacturer specifications for all measuring instruments used, including the operating instructions, calibration instructions, and calibration log, as part of the Dewatering and Discharge Plan submittal. All field calibrations shall be done in conformance with the manufacturer's instructions in the presence of the Engineer. Copies of the field-recorded data shall be transmitted electronically to the Engineer at the end of each working day.

If, at any time, sampling indicates that the effluent does not meet the water quality requirements (WQR), the Contractor shall immediately cease discharge, notify the Engineer and take corrective actions to repair, maintain, or replace the equipment, or to modify operations. The Contractor shall prepare and submit a Notice of Discharge within 48 hours, as described in the SWPPP Preparation Manual, Attachment K. The discharges shall not resume until approved by the Engineer. These events and the corrective actions shall be recorded in the DIR.

### **DEWATERING AND DISCHARGE PLAN**

The Contractor shall submit a Dewatering and Discharge Plan (DDP) to the Engineer, for review and approval, in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications and "Water Pollution Control," of these special provisions. At a minimum, the DDP shall include the following:

- A. Title sheet
- B. Table of contents
- C. Certification and approval sheet (Section 100 of the SWPPP/WPCP Preparation Manual)
- D. Amendment log & Amendment format (Section 200 of the SWPPP/WPCP Preparation Manual)
- E. Description of the dewatering and discharge (Land-Based Dewatering) operations
- F. Description of the methods and measures to be used to seal the sides and bottom of the piles and to prevent the flow of water into excavation and temporary stockpiles
- G. Estimated schedule for dewatering and discharge (begin and end dates, intermittent or continuous)
- H. Treatment system description and components
- I. Design efficiency and anticipated flow rates
- J. Operation and system maintenance procedures and example maintenance log
- K. Visual, flow, and water quality monitoring, calibration and inspection procedures with example inspection logs
- L. Water quality measurement procedures and equipment description with example data logs
- M. Proposed form for the Daily Inspection Report
- N. Working drawings of dewatering and discharge operations shall include as a minimum:
  - 1) sectional and plan views of water treatment systems for the removal of suspended solids and other pollutants introduced during construction
  - 2) the location of sampling points for water quality measurements
  - 3) the flow path and placement of pipes, hoses, pumps, holding tanks, and other equipment used to convey the water and effluent from the holding tanks
  - 4) the general position of the water collection, conveyance, treatment, and disposal operation components relative to the land-based operations, including the discharge location, if applicable.

A flow meter that has been approved by the Engineer for exclusive use in dewatering during construction shall be used to measure all excavation discharges. The Contractor shall record the flow-meter totalizer readings for every day when dewatering is conducted and compute average daily volumes.

The DDP shall be submitted prior to beginning excavation operations. The Contractor shall allow 10 working days for the Engineer to review and approve the DDP. If revisions are required, as determined by the Engineer, the Contractor shall revise and resubmit the DDP within 5 working days for the Engineer to review the revisions. Excavation operations shall not be allowed until the Engineer has approved the DDP. In order to allow excavation to proceed, the Engineer may conditionally approve the DDP while minor revisions are being completed. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for resulting losses, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

The Contractor shall prepare an amendment to the SWPPP when there is a change in operations which may cause the water to violate the WQR or when directed by the Engineer. Amendments shall identify additional treatment practices or revised operations, including those areas or operations not identified in the initially approved DDP. Amendments to the DDP shall be prepared and submitted for review and approval within a time approved by the Engineer, but in no case longer than the time specified for the initial submittal and review of the DDP.

The Contractor shall keep one copy of the approved DDP and approved amendments at the project site. The DDP shall be made available upon request by a representative of the Regional Water Quality Control Board, State Water Resources Control Board, United States Environmental Protection Agency, or the local storm water management agency. Requests by the public shall be directed to the Engineer.

At the time of approval, the Contractor shall incorporate the DDP into the approved Storm Water Pollution Prevention Plan (SWPPP) via the established amendment process as described within "Water Pollution Control" of the special provisions.

## **NON-STORM WATER DISCHARGE CONTROL**

### **Spill Contingency**

The Contractor shall prepare and submit to the Engineer a contingency plan for the management of spills or leaks of any materials or wastes that may impact the water quality of the receiving water or water body.

The spill contingency plan shall be incorporated within the Storm Water Pollution Prevention Plan (SWPPP), as specified in "Water Pollution Control" of these special provisions.

The contingency plan shall include instructions and procedures for preventing spills, reporting spills, and a list of spill containment and collection materials and equipment to be maintained onsite. The contingency plan shall be reviewed and updated as directed by the Engineer.

### **Liquids, Residues, And Debris**

The control and disposal of the liquids, residues, and debris shall be described within the SWPPP, as specified in "Water Pollution Control" of these special provisions. The SWPPP shall, at a minimum, depict and describe the procedural and structural methods of detaining, collecting, and disposing of all slurries, liquids, residues, and debris associated with the operations. Sufficient redundancy shall be incorporated into the procedural and structural methods such that the liquids, residues, and debris are not conveyed into or become present in receiving waters, drainage systems, or other water bodies.

## **PAYMENT**

The contract lump sum price paid for dewatering and non-storm water discharge control shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in dewatering and non-storm water discharges control, complete in place, including collecting, conveying, treating, and disposing of dewatering discharges and the sediment from the treatment system to the Russian River and at an off-site facility; preparing and amending a DDP; conforming to the requirements of the DDP; water quality monitoring including additional monitoring required by off-site disposal facility; providing power to operate equipment; furnishing, maintaining, and removing treatment systems; performing inspections and visual observations; preparing and submitting the DIR and the Initial Monitoring Report; and providing all necessary maintenance, including removal and disposal of accumulated sediment, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

**10-1.27A SOUND ATTENUATION SYSTEM**

This work shall consist of designing, furnishing, installing, operating, monitoring, maintaining, and removing a sound attenuation system to attenuate underwater energy generated by driving piles in the wetted channel areas (through which flow always passes). The sound attenuation system shall consist of either an air bubble curtain with a temporary isolation casing or a temporary isolation casing kept dry during pile driving.

**AIR BUBBLE CURTAIN SYSTEM**

The air bubble curtain system shall consist of all submerged and above-water equipment and materials needed to generate air bubbles within a temporary isolation casing of adequate diameter to contain the submerged equipment and materials. For purposes of this specification, pile installation refers to all the activities involved with driving a single pile; pile driving refers to the time when the hammer is physically driving the pile.

Attention is directed to the following sections of these special provisions regarding permit restrictions and regulations that may impact attenuator system design, operation, and removal:

- A. Relations with California Department of Fish and Game
- B. Relations with Regional Water Quality Control Board
- C. Relations with U.S. Army Corps of Engineers
- D. Relations with National Marine Fisheries Service.

The approved attenuator system shall be operating prior to beginning pile driving at any given pile location. If the attenuator fails, as determined by the Engineer, pile driving shall immediately stop. Piling driving at any given location shall not resume until the attenuator system at that location is again operating in conformance with the requirements of this section, as determined by the Engineer.

Failure of the attenuator system shall include, but not be limited to, the following methods of failure as determined by the Engineer:

- A. The pressure or flow rate in any meter falls below 90% of its determined operating value during the pile driving operation. Operating values based on calculated data will be determined during the performance test.
- B. During inspection of the perforated pipe the Engineer determines that erosion of the holes or debris has clogged the holes that will degrade the performance of the system.

The Contractor shall make provisions for the Engineer to inspect the bubble curtain system for proper operation before each deployment and as necessary during deployment. Proper operation during deployment will be determined by observation of the digital meters (air flow) and analog gauges (pressure) in the monitoring station and by other methods developed by the Engineer.

**General**

An air bubble curtain system is generally composed of an air compressor(s), supply lines to deliver the air, distribution manifolds or headers, perforated aeration pipes, and a frame. The frame facilitates transport and placement of the system, keeps the aeration pipes stable, and provides ballast to counteract the buoyancy of the aeration pipes in operation.

Air bubble curtain system shall conform to the following:

- A. Air bubble system shall consist of multiple and concentric layers of perforated aeration pipes stacked vertically in accordance with the following:

Water Depth (m)	No. of Layers
0 to less than 5	2
5 to less than 10	4

- B. Pipes in any layer shall be arranged in a geometric pattern, which shall allow for the pile driving operation to be completely enclosed by bubbles for the full depth of the water column and for a radial dimension of no more than 0.5 meters as measured from the outside surface of the pile.
- C. The lowest layer of perforated aeration pipes shall be designed to ensure contact with the ground line without sinking into the river gravels.

- D. The system shall provide a bubble flux of 2.0 cubic meters per minute per linear meter of pipe in each layer. Air holes shall be 1.6 mm in diameter and shall be spaced approximately 20 mm apart. Air holes shall be placed in four adjacent rows along the pipe to provide uniform bubble flux.
- E. Meters shall be provided in accordance with the following:
  - 1. Pressure meters shall be installed at all inlets to aeration pipelines (manifolds) and at points of lowest pressure in each branch of the aeration pipeline pipelines (manifolds).
  - 2. The flow meters shall be installed in the main line at each compressor and at each branch of the aeration pipelines (manifold). In applications where the feedline from the compressor is continuous from the compressor to the aeration pipe inlet, the flow meter at the compressor can be eliminated.
  - 3. Flow meters shall be installed according to the manufacturer's recommendation based on either laminar flow or non-laminar flow, whichever applies.

Gauges shall be installed above the water line and shall be easily accessible to the Engineer. The Contractor shall keep a continuous electronic log of all meters and gauges when the system is operating. Readings shall be logged every 1 minute and at other times, as determined by the Engineer, when variation in the readings exceed 10%. The Contractor shall maintain a graphical plot showing the variation of the meter readings with time.

Air pressure and air flow meters and gauges shall be calibrated by a private laboratory approved by the Engineer prior to use in the attenuator system. Meters shall be accurate to within 2 percent.

The contractor shall conduct a performance test of the bubble curtain, prior to any pile driving operations, in order to confirm the calculated pressures and flow rates at each manifold ring.

The Contractor shall submit an inspection/performance report in conformance with "Working Drawings," of these special provisions within 72 hours following the performance test.

The Contractor shall monitor the condition of the attenuator system and prepare inspection reports daily during pile installation operations and no less than every other day during periods of no activity.

The Contractor's design, installation, maintenance, monitoring, operation and removal of the attenuator system shall take into account the site conditions and the requirements of pile installation. Factors to be taken into account include anchoring, moving, and dismantling the system; configuration of the river bottom; water velocity; water-surface conditions; air and water temperatures; and positioning of pile and pile-driving equipment relative to the bubble curtain system.

All material and equipment for the attenuator system shall be on the temporary work trestle. No equipment shall be stored on the river bed.

Water velocity at the site is expected to vary from zero to 2.5 meters/second. The design of the system shall ensure that the system extends from the river bottom to the water surface during maximum water-current conditions.

The pile-driving crane shall be isolated from the noise-producing operations. This isolation shall be such that noise from the pile driving operation is not transmitted through the crane to the water column. The barge deploying or containing the pile-driving equipment is not required to be contained within the system.

The Contractor shall completely remove the attenuator system at the completion of the project and the system will remain the property of the Contractor.

### **Working Drawings**

The Contractor shall submit working drawings with supplement for the attenuator system to the Engineer for approval in conformance with the provisions in "Working Drawings," of these special provisions, except as otherwise noted.

Working drawings with supplement shall be signed by a Mechanical Engineer who is registered in the State of California. Working drawings shall include the following:

- A. Complete details of the system including mechanical and structural details.
- B. Details of anchorage components, air compressors, supply lines, distribution manifolds, aeration pipes and frame.
- C. Details of proposed means of isolating noise-producing systems on the pile-driving barge.
- D. Details of meters, gauges, and recording devices.
- E. Details of the manufacturer's recommendations for installation of the flow meters in conditions of laminar flow and non-laminar flow.

The supplement to the working drawing shall include the following:

- A. Independently checked design calculations.
- B. Materials list including the name of the manufacturer and the source, model number, description, and standard of manufacture.
- C. Manufacturer's descriptive data and catalog cuts for all products proposed for the system including air compressors.
- D. Calculations showing pressure loss in the piping system and estimated flows from the most removed orifice of the aeration piping.

Within 4 days after the approval of the contract, the Contractor shall submit working drawings, with supplements, to the Engineer. The Contractor shall allow the Engineer 3 days to review the working drawings. If revisions are required, as determined by the Engineer, the Contractor shall revise and resubmit the working drawings within 3 days of receipt of the Engineer's comments. The Contractor shall allow the Engineer 2 days to review the revised working drawings.

The Contractor shall submit inspection reports in conformance with "Working Drawings," of these special provisions within 48 hours following inspection.

#### **PAYMENT**

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in furnishing the sound attenuation system, complete in place, including designing, installing, inspecting, operating, maintaining, monitoring, recording, and removing the attenuation system, as specified in these special provisions, and as directed by the Engineer shall be considered as included in the contract unit price paid for drive State furnished cast-in-steel-shell concrete pile (1220 mm) and no additional compensation will be allowed therefor.

Full compensation for isolation of pile-driving crane from pile installation noise shall be considered as included in the contract unit price paid for drive state furnished cast-in-steel-shell concrete pile (1220 mm) and no additional compensation will be allowed therefor.

### **10-1.38 CONCRETE BARRIER**

Concrete barriers shall conform to the provisions in Section 83-2, "Barriers," of the Standard Specifications and these special provisions.

#### **Architectural Surface (Textured Concrete)**

Architectural textures for concrete surfaces shall conform to the details shown on the plans and the provisions in Section 51, "Concrete Structures," of the Standard Specifications and these special provisions:

Architectural textures listed below are required at concrete surfaces shown on the plans:

##### **A. Formed relief texture**

The architectural texture shall simulate a wave-like formed relief consisting of a combination of recesses, smooth surfaces and fractured rib texture constructed to the dimensions and shapes shown on the plans. Corners at the intersection of plane surfaces shall be sharp and crisp without easing or rounding. A Class 1 surface finish shall be applied to the architectural texture.

The fractured rib texture portion shall be an architectural texture simulating the appearance of straight ribs of concrete with a fractured concrete texture imparted to the raised surface between the ribs. Grooves between ribs shall be continuous with no apparent curves or discontinuities. Variation of the groove from straightness shall not exceed 6 mm for each 3 m of groove. The architectural texture shall have random shadow patterns. Broken concrete at adjoining ribs and groups of ribs shall have a random pattern. The architectural texture shall not have secondary patterns imparted by shadows or repetitive fractured surfaces.

#### **TEST PANEL**

A test panel at least 1.25 m x 1.25 m in size shall be successfully completed at a location approved by the Engineer before beginning work on architectural textures. The test panel shall be constructed and finished with the materials, tools, equipment and methods to be used in constructing the architectural texture. If ordered by the Engineer, additional test panels shall be constructed and finished until the specified finish, texture and color are obtained, as determined by the Engineer.

The test panel approved by the Engineer shall be used as the standard of comparison in determining acceptability of architectural texture for concrete-surfaces.

## FORM LINERS

Form liners shall be used for textured concrete surfaces and shall be installed in conformance with the manufacturer's recommendations, unless other methods of forming textured concrete surfaces are approved by the Engineer. Form liners shall be manufactured from an elastomeric material or a semi-elastomeric polyurethane material by a manufacturer of commercially available concrete form liners. No substitution of other types of formliner material will be allowed. Form liners shall leave crisp, sharp definition of the architectural surface. Recurring textural configurations exhibited by repeating, recognizable shadow patterns shall be prevented by proper casting of form liner patterns. Textured concrete surfaces with such recurring textural configurations shall be reworked to remove such patterns as approved by the Engineer or the concrete shall be replaced.

Form liners shall have the following properties:

Description	ASTM Designation:	Range
Elastomeric material		
Shore A hardness	D 2240	20 to 65
Tensile strength (MPa)	D 412	0.9 to 6.2
Semi-elastomeric polyurethane		
Shore D hardness	D 2240	55 to 65
Tensile strength (MPa)	D 2370	18 minimum

Cuts and tears in form liners shall be sealed and repaired in conformance with the manufacturer's recommendations. Form liners that are delaminated from the form shall not be used. Form liners with deformations to the manufactured surface caused by improper storage practices or any other reason shall not be used.

Form liners shall extend the full length of texturing with transverse joints at 2.5 m minimum spacing. Small pieces of form liners shall not be used. Grooves shall be aligned straight and true. Grooves shall match at joints between form liners. Joints in the direction of grooves in grooved patterns shall be located only in the depressed portion of the textured concrete. Adjoining liners shall be butted together without distortion, open cracks or offsets at the joints. Joints between liners shall be cleaned before each use to remove any mortar in the joint.

Adhesives shall be compatible with the form liner material and with concrete. Adhesives shall be approved by the liner manufacturer. Adhesives shall not cause swelling of the liner material.

## RELEASING FORM LINERS

Products and application procedures for form release agents shall be approved by the form liner manufacturer. Release agents shall not cause swelling of the liner material or delamination from the forms. Release agents shall not stain the concrete or react with the liner material. For reliefs simulating fractured concrete or wood grain surfaces the application method shall include the scrubbing method using a natural bristle scrub brush in the direction of grooves or grain. The release agent shall coat the liner with a thin film. Following application of form release agent, the liner surfaces shall be cleaned of excess amounts of agent using compressed air. Buildup of form release agent caused by the reuse of a liner shall be removed at least every 5 uses.

Form liners shall release without leaving particles or pieces of liner material on the concrete and without pulling or breaking concrete from the textured surface. The concrete surfaces exposed by removing forms shall be protected from damage.

### **CURING**

Concrete surfaces with architectural texture shall be cured only by the forms-in-place or water methods. Seals and curing compounds shall not be used.

### **PAYMENT**

Full compensation for architectural texture shall be considered as included in the contract price paid per meter for concrete barrier of the type or types listed in the Engineer's Estimate and no separate payment will be made therefor.

Full compensation for forming and finishing scuppers at locations as shown on the plans shall be considered as included in the contract price paid per meter for concrete barrier of the type or types listed in the Engineer's Estimate and no separate payment will be made therefor.

**ENGINEER'S ESTIMATE  
04-2S9404**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
21 (S)	038856	EROSION CONTROL (NETTING)	M2	870		
22 (S)	203003	STRAW (EROSION CONTROL)	TONN	4		
23 (S)	203014	FIBER (EROSION CONTROL)	KG	640		
24 (S)	203021	FIBER ROLLS	M	190		
25 (S)	203024	COMPOST (EROSION CONTROL)	M3	8		
26 (S)	203026	MOVE-IN/MOVE-OUT (EROSION CONTROL)	EA	3		
27 (S)	203045	PURE LIVE SEED (EROSION CONTROL)	KG	39		
28 (S)	203061	STABILIZING EMULSION (EROSION CONTROL)	KG	150		
29	250401	CLASS 4 AGGREGATE SUBBASE	M3	60		
30	390155	ASPHALT CONCRETE (TYPE A)	TONN	260		
31 (S)	040255	DRIVE STATE FURNISHED CAST-IN-STEEL SHELL CONCRETE PILING (1220 MM)	EA	27		
32 (S)	040256	PRESTRESSING (TRANSVERSE)	LS	LUMP SUM	LUMP SUM	
33	510000	SEAL COURSE CONCRETE	M3	220		
34 (F)	510053	STRUCTURAL CONCRETE, BRIDGE	M3	1720		
35 (S)	512240	FURNISH PRECAST PRESTRESSED CONCRETE BOX GIRDER (20 M - 25 M)	EA	24		
36 (S)	512242	FURNISH PRECAST PRESTRESSED CONCRETE BOX GIRDER (30 M - 35 M)	EA	96		
37 (S)	512502	ERECT PRECAST PRESTRESSED CONCRETE BOX GIRDER	EA	120		
38 (S)	519127	JOINT SEAL ASSEMBLY (MR 90 MM)	M	30		
39 (S-F)	520102	BAR REINFORCING STEEL (BRIDGE)	KG	477 000		
40	560238	FURNISH SINGLE SHEET ALUMINUM SIGN (1.6 MM-UNFRAMED)	M2	1.6		

**ENGINEER'S ESTIMATE  
04-2S9404**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
41	560239	FURNISH SINGLE SHEET ALUMINUM SIGN (2.0 MM-UNFRAMED)	M2	1.1		
42	566011	ROADSIDE SIGN - ONE POST	EA	4		
43 (S-F)	750041	ISOLATION CASING	KG	22 000		
44 (S-F)	750501	MISCELLANEOUS METAL (BRIDGE)	KG	4600		
45 (S-F)	040257	TUBULAR HANDRAILING (BICYCLE)	M	600		
46	BLANK					
47	038857	CRASH CUSHION (TAU II 4 BAY)	EA	2		
48 (F)	839702	CONCRETE BARRIER (TYPE 60A)	M	300		
49	BLANK					
50	840561	100 MM THERMOPLASTIC TRAFFIC STRIPE	M	1436		
51	850102	PAVEMENT MARKER (REFLECTIVE)	EA	100		
52	BLANK					
53 (F)	039013	CONCRETE BARRIER (TYPE 742 MODIFIED)	M	300		
54 (F)	039014	CONCRETE BARRIER (PARAPET)	M	300		
55	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

ENGINEER'S ESTIMATE  
04-2S9404

**TOTAL BID (A):** = \_\_\_\_\_

**TOTAL BID (B):**

\$ 32000.00 X \_\_\_\_\_ = \_\_\_\_\_

(Cost Per Day) (Enter Working Days Bid for Phase II  
work)

(Not To Exceed 134 Days)

**TOTAL BASIS FOR COMPARISON**

**OF BIDS:** (A + B): \_\_\_\_\_